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# Air Quality Monitoring in Alberta 1996

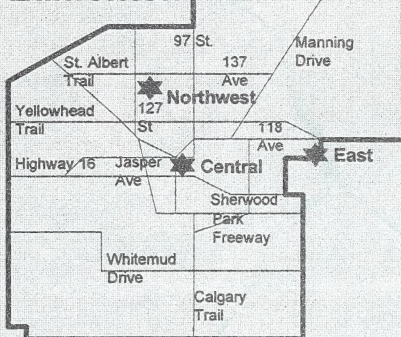
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## DATA REPORT



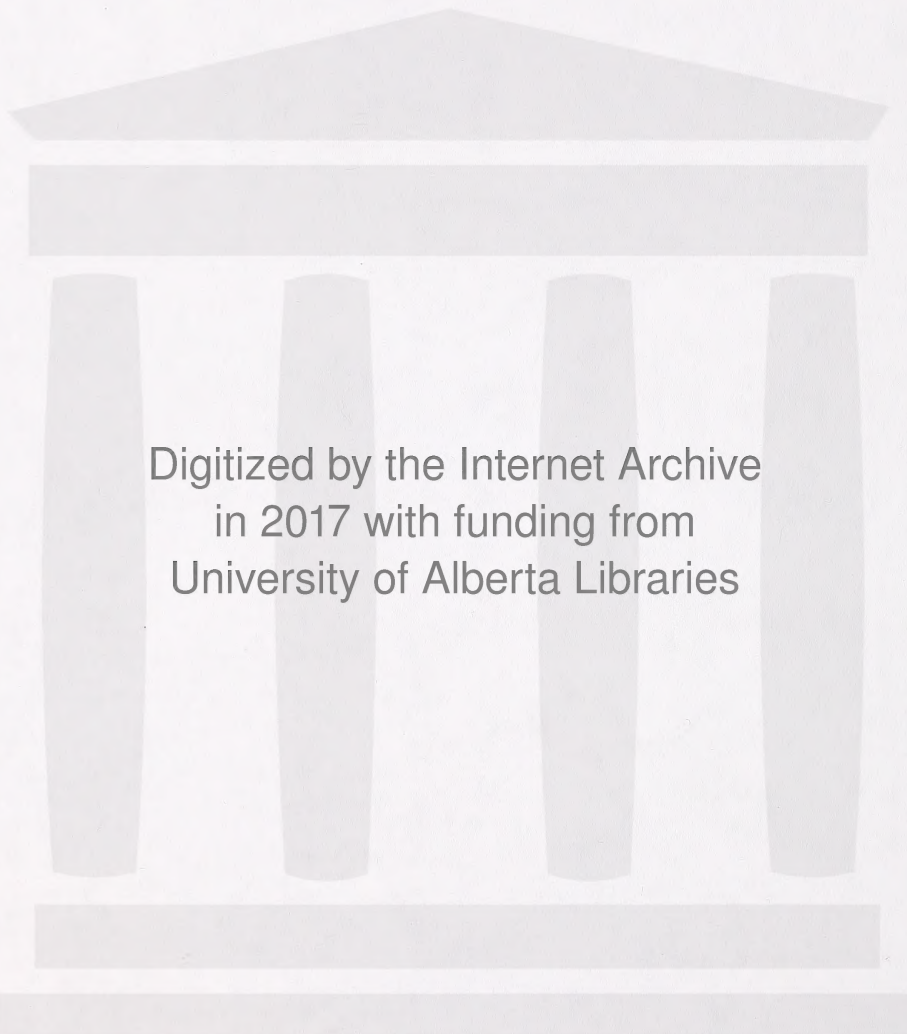
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# **AIR QUALITY MONITORING IN ALBERTA**

## **1996 DATA REPORT**

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Air Issues and Monitoring Branch  
Chemicals Assessment and Management Division  
Alberta Environmental Protection

**January 1998**

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This report is one in a series of air quality annual reports produced by Alberta Environmental Protection for 1996. The following air quality annual reports are available for 1996:

**Air Quality Monitoring in Alberta: 1996 Summary Report;  
Air Quality Monitoring in Alberta: 1996 Detailed Report, and  
Air Quality Monitoring in Alberta: 1996 Data Report.**

For copies of these reports or for more information contact:

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# LIST OF ABBREVIATIONS

## Monitoring Locations

EDMU	Edmonton Central (downtown) monitoring unit
ERMU	Edmonton Northwest (residential) monitoring unit
EIMU	Edmonton East (industrial) monitoring unit
CDMU	Calgary Central (downtown) monitoring unit
CRMU	Calgary Northwest (residential) monitoring unit
CIMU	Calgary East (industrial) monitoring unit
FTSK	Fort Saskatchewan monitoring unit
FMMU	Fort McMurray monitoring unit
FRMU	Fort MacKay monitoring unit
SPBK	Springbank monitoring unit (Springbank Airport)
RLPK	Royal Park monitoring unit (Vegreville)

## Pollutant Parameters

IQUA	Index of the Quality of the Air
NH <sub>3</sub>	ammonia
CO	carbon monoxide
CO <sub>2</sub>	carbon dioxide
H <sub>2</sub> S	hydrogen sulphide
NO <sub>2</sub>	nitrogen dioxide
NO	nitric oxide
NO <sub>x</sub>	oxides of nitrogen
O <sub>3</sub>	ozone
PM <sub>10</sub>	inhalable particulates
SO <sub>2</sub>	sulphur dioxide
THC	total hydrocarbons
TSP	total suspended particulates
BaP	benzo(a)pyrene

## Units of Measurement

ppm	parts per million by volume
ppb	parts per billion by volume
µg/m <sup>3</sup>	micrograms per cubic meter
ng/m <sup>3</sup>	nanograms per cubic meter
H <sup>+</sup> kg/ha	kilograms per hectare (hydrogen ion equivalent)
kg/ha	kilograms per hectare
mg/day/100 <sup>2</sup>	milligrams per day per 100 square centimeters
km/hr	kilometres per hour
mm	millimetres
ml	millilitres
COH units	coefficient of haze units measured as the reduction of light transmission per 1000 linear feet of air sample.



# INTRODUCTION

This document is prepared as an appendix to the report entitled "Air Quality Monitoring in Alberta: 1996 Detailed Report". Data summaries are presented for continuous, intermittent, static and precipitation quality monitoring networks operated by Alberta Environmental Protection.

## *Continuous Air Quality Monitoring*

Air pollutants which are monitored on a continuous basis include ammonia, carbon monoxide, carbon dioxide, dust and smoke (the coefficient of haze), hydrogen sulphide, nitrogen dioxide, nitric oxide, total oxides of nitrogen, ozone, inhalable particulates, sulphur dioxide and total hydrocarbons. Concentrations of these pollutants are reported once every hour, 24 hours a day, 365 days a year. In the continuous air quality data section of this report, the Index of the Quality of the Air, wind direction and speed, and concentrations of individual air pollutants are summarized. Individual air pollutants have been analyzed, on an annual, seasonal and monthly basis, to resolve simple statistics which describe the data. Seasons are defined as winter (December, January, February), spring (March, April, May), summer (June, July, August) and autumn (September, October, November) (Trenberth, 1983). The subsequent pages contain the following information for each continuously monitored air pollutant: (1) percentiles (which indicate the percentage of observations above and below a specific percentile; i.e., 75% means that 75% of the observations are below or equal to the value indicated and 25% of the observations are above the value indicated); (2) simple statistics such as arithmetic and geometric means, arithmetic standard deviations, range, and the number of observations; and (3) the percentage of time that ambient parameter concentrations exceeded the guidelines. Wind direction frequency distributions are generated for times when the guidelines were exceeded. Annual average pollutant concentrations of historical data are also included. Statistical procedures used in this analysis are detailed in numerous statistics publications (refer to Zar (1974) and Gilbert (1987)).

Data below the limit of detection (LOD) are estimated by the method described in Gilliom and Helsel (1986). It is assumed that the air quality data above the LOD follows a lognormal distribution. The data below the LOD are fitted to this lognormal distribution by the method of least squares. Initially, normal scores are calculated for all data points above the LOD by the following equations:

$$z = F(y)^{-1}(r/n + 1); \quad \text{and} \quad F(y) = r/(n + 1);$$

where  $F(y)$  is the cumulative frequency function for the standardized normal distribution,  $n$  is the number of observations,  $r$  is the order of the observation from the LOD to  $n$  and  $z$  is the normal score. A least squares regression of concentration on normal scores is then applied. The data below the LOD may then be estimated by the linear regression equation. Percentiles and statistics are calculated from this modified distribution.

## *Intermittent Air Quality Monitoring*

Intermittent air quality monitoring refers to air pollutants which are monitored as a 24-hour accumulated loading, once every sixth day, according to the National Air Pollution Surveillance (NAPS) system. Total suspended particulates are monitored according to this system. Total suspended particulate samples are analyzed for benzo(a)pyrene, benzo(a)anthracene, chrysene, benzo(b,k)fluoranthene, benzo(e)pyrene, indeno(1,2,3-c,d)pyrene, dibenzo(a,h)anthracene, benzo(g,h,i)perylene, sulphates, and nitrates. Minimums, geometric means and maximum values are summarized by month for intermittent monitoring parameters. Annual average values of historical data are also provided.



### ***Static Air Quality Monitoring***

In 1996, static air quality monitoring was conducted at two locations in Alberta. Static monitoring was undertaken from January to December in the Fort McMurray area, and from January to June in the Raven Brood area of central Alberta. The Fort McMurray network consisted of six stations that monitored both total sulphation and hydrogen sulphide, while only total sulphation was monitored at the Raven Brood station. Static monitoring is the measurement of total accumulated loadings of pollutants on a one-month schedule. The data are presented as monthly average loadings for each location.

### ***Precipitation Quality Monitoring***

Rain and snow samples were collected on a weekly basis at 11 precipitation quality monitoring stations in 1996. Chemical analysis was conducted on these samples to obtain pH as well as other anions and cations contained in precipitation. Anion and cation wet deposition rates, as well as the calculated effective acidity and potential acid input deposition rates are presented for weekly precipitation samples. Annual pH values were calculated using volume weighted average hydrogen ion concentrations from weekly samples. Annual anion, cation, effective acidity, and potential acid input deposition rates were also calculated simply as the sum of the monthly values. Anion and cation deposition rates were calculated using the following equation:

$$\text{wet deposition(kg/ha)} = \frac{\text{concentration(mg/l)} \times \text{precipitation depth(mm)}}{100}$$

where precipitation depth was calculated using the volume of precipitation in the collector.

Effective acidity (EA) is an approach which has been developed to estimate the degree of acidification which soil would experience as a result of atmospheric inputs. This approach takes into account: (1) direct deposition of acids onto the soil; and (2) the chemical, biological and physical processes which take place within the soil as a result of acid deposition. Effective acidity is described by the equation:

$$EA = [H^+] + 1.15x[NH_4^+] - 0.7x[NO_3^-]$$

where  $[H^+]$ ,  $[NH_4^+]$  and  $[NO_3^-]$  are concentrations of hydrogen ions, ammonia ions and nitrate ions, respectively, expressed as molar equivalents (Coote, Siminovitch, Sing, & Wang, 1981). Effective acidity is presented as deposition in kilomoles of hydrogen ion equivalents per hectare.

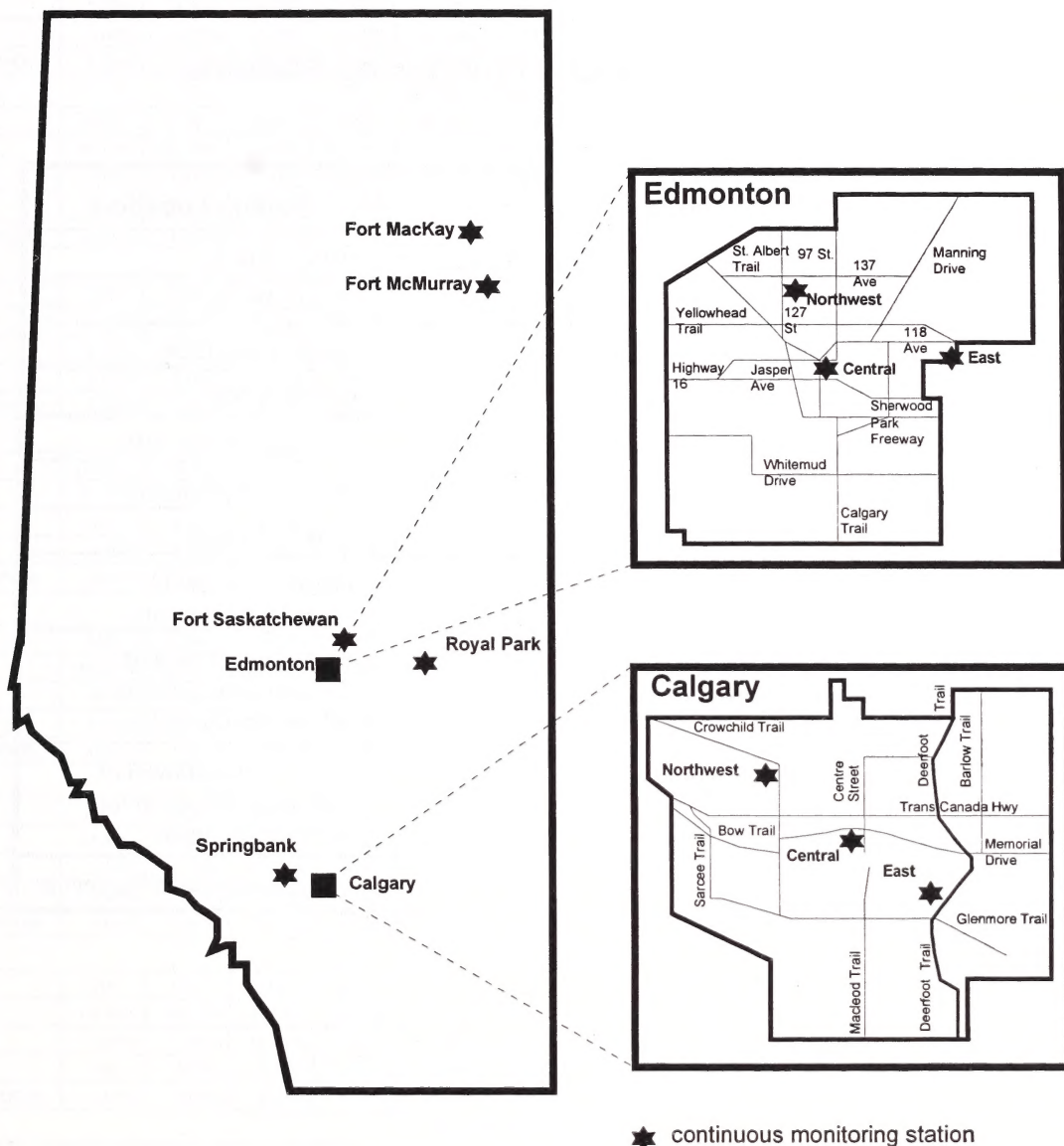
Potential acid input (PA) is an approach that takes into account all sulphur and inorganic nitrogen that is deposited by wet and dry deposition processes (Lovblad et al., 1992; Bull, 1992). The non-marine base cation deposition is subtracted from the equation to get the net acid input into the ecosystem. In precipitation, potential acid input is calculated using the following equation:

$$PA = [SO_4^{2-}] + [NO_3^-] + [NH_4^+] - [Ca^{2+}] - [Mg^{2+}] - [K^+]$$

where wet deposition of sulphate, nitrate, ammonium, calcium, magnesium and potassium are calculated in kilomoles of hydrogen ions equivalents per hectare.



## LOCATION OF CONTINUOUS AIR QUALITY MONITORING STATIONS



## Location of Continuous Monitoring Stations

Station Name	Station Location
Edmonton Central (Downtown) Monitoring Unit (EDMU)	10255 - 104 St.
Edmonton Northwest (Residential) Monitoring Unit (ERMU)	13335 - 127 St.
Edmonton East (Industrial) Monitoring Unit (EIMU)	105 Ave. and 17 St.
Calgary Central (Downtown) Monitoring Unit (CDMU)	611 - 4 St. SW
Calgary Northwest (Residential) Monitoring Unit (CRMU)	39 St. and 29 Ave. NW
Calgary East (Industrial) Monitoring Unit (CIMU)	49 Ave. and 15 St. SE
Fort Saskatchewan Monitoring Unit (FTSK)	9209A - 96 Ave.
Fort McMurray Monitoring Unit (FMMU)	Franklin Ave. at old waterpump house site
Fort MacKay Monitoring Unit (FRMU)	100 m west of the Fort MacKay Band Council Administration Office
Springbank (SPBK)	20 km west-northwest of downtown Calgary at the Springbank Airport
Royal Park (RLPK)	10 km northwest of Vegreville



## INDEX OF THE QUALITY OF THE AIR IN 1996 (% of time in each category)

EDMONTON CENTRAL													
IQUA	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
GOOD	100.00%	100.00%	100.00%	100.00%	99.50%	99.20%	100.00%	97.80%	100.00%	100.00%	100.00%	100.00%	99.71%
FAIR	0.00%	0.00%	0.00%	0.00%	0.50%	0.80%	0.00%	2.20%	0.00%	0.00%	0.00%	0.00%	0.29%
POOR	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
VERY POOR	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
EDMONTON NORTHWEST													
IQUA	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
GOOD	99.60%	100.00%	98.90%	100.00%	99.60%	98.90%	100.00%	96.40%	100.00%	99.70%	99.70%	100.00%	99.40%
FAIR	0.40%	0.00%	1.10%	0.00%	0.40%	1.10%	0.00%	3.40%	0.00%	0.30%	0.30%	0.00%	0.58%
POOR	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.30%	0.00%	0.00%	0.00%	0.00%	0.03%
VERY POOR	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
EDMONTON EAST													
IQUA	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
GOOD	99.50%	100.00%	100.00%	96.70%	98.00%	96.40%	98.90%	93.90%	100.00%	99.70%	100.00%	100.00%	98.59%
FAIR	0.50%	0.00%	0.00%	3.30%	2.00%	3.60%	1.10%	6.10%	0.00%	0.30%	0.00%	0.00%	1.41%
POOR	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
VERY POOR	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CALGARY CENTRAL													
IQUA	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
GOOD	99.70%	100.00%	99.60%	100.00%	100.00%	99.40%	100.00%	99.70%	100.00%	100.00%	100.00%	100.00%	99.87%
FAIR	0.30%	0.00%	0.40%	0.00%	0.00%	0.60%	0.00%	0.30%	0.00%	0.00%	0.00%	0.00%	0.13%
POOR	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
VERY POOR	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CALGARY NORTHWEST													
IQUA	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
GOOD	100.00%	100.00%	100.00%	97.80%	96.20%	88.30%	95.20%	89.10%	100.00%	100.00%	100.00%	100.00%	97.22%
FAIR	0.00%	0.00%	0.00%	2.20%	3.80%	11.70%	4.80%	10.90%	0.00%	0.00%	0.00%	0.00%	2.78%
POOR	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
VERY POOR	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CALGARY EAST													
IQUA	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
GOOD	97.70%	98.30%	99.10%	100.00%	98.00%	93.80%	99.90%	98.80%	100.00%	99.60%	99.40%	97.60%	98.52%
FAIR	2.00%	1.70%	0.90%	0.00%	2.00%	6.30%	0.10%	1.20%	0.00%	0.40%	0.60%	2.30%	1.46%
POOR	0.30%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.10%	0.03%
VERY POOR	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
FORT SASKATCHEWAN													
IQUA	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
GOOD	100.00%	99.00%	89.80%	90.40%	81.50%	86.50%	96.10%	91.40%	98.90%	100.00%	100.00%	100.00%	94.47%
FAIR	0.00%	1.00%	10.20%	9.60%	18.50%	13.50%	3.90%	8.10%	1.10%	0.00%	0.00%	0.00%	5.49%
POOR	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.50%	0.00%	0.00%	0.00%	0.00%	0.04%
VERY POOR	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
FORT MCMURRAY													
IQUA	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
GOOD	100.00%	100.00%	100.00%	96.80%	95.30%	99.40%	100.00%	100.00%	100.00%	100.00%	100.00%	99.90%	99.28%
FAIR	0.00%	0.00%	0.00%	3.20%	4.70%	0.60%	0.00%	0.00%	0.00%	0.00%	0.00%	0.10%	0.72%
POOR	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
VERY POOR	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

**INDEX OF THE QUALITY OF THE AIR IN 1996**  
 (% of time each pollutant contributed to Fair, Poor and Very Poor air quality readings)

EDMONTON CENTRAL													
Pollutant	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
CO	*	*	*	*	0.00%	0.00%	*	0.00%	*	*	*	*	0.00%
COH	*	*	*	*	0.00%	0.00%	*	0.00%	*	*	*	*	0.00%
NO <sub>2</sub>	*	*	*	*	0.00%	0.00%	*	0.00%	*	*	*	*	0.00%
O <sub>3</sub>	*	*	*	*	100.00%	100.00%	*	100.00%	*	*	*	*	100.00%
EDMONTON NORTHWEST													
Pollutant	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
CO	0.00%	*	0.00%	*	0.00%	0.00%	*	0.00%	*	0.00%	0.00%	*	0.00%
COH	100.00%	*	0.00%	*	0.00%	0.00%	*	0.00%	*	100.00%	100.00%	*	13.21%
NO <sub>2</sub>	0.00%	*	100.00%	*	33.30%	0.00%	*	29.63%	*	0.00%	0.00%	*	32.08%
O <sub>3</sub>	0.00%	*	0.00%	*	66.70%	100.00%	*	70.37%	*	0.00%	0.00%	*	54.72%
EDMONTON EAST													
Pollutant	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
CO	0.00%	*	*	0.00%	0.00%	0.00%	0.00%	0.00%	*	0.00%	*	*	0.00%
COH	100.00%	*	*	0.00%	0.00%	0.00%	0.00%	2.20%	*	100.00%	*	*	5.65%
NO <sub>2</sub>	0.00%	*	*	0.00%	0.00%	0.00%	0.00%	0.00%	*	0.00%	*	*	0.00%
O <sub>3</sub>	0.00%	*	*	100.00%	100.00%	100.00%	100.00%	97.80%	*	0.00%	*	*	94.35%
SO <sub>2</sub>	0.00%	*	*	0.00%	0.00%	0.00%	0.00%	0.00%	*	0.00%	*	*	0.00%
CALGARY CENTRAL													
Pollutant	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
CO	0.00%	*	0.00%	*	*	0.00%	*	0.00%	*	*	*	*	0.00%
COH	100.00%	*	0.00%	*	*	0.00%	*	0.00%	*	*	*	*	18.18%
NO <sub>2</sub>	0.00%	*	100.00%	*	*	0.00%	*	0.00%	*	*	*	*	27.27%
O <sub>3</sub>	0.00%	*	0.00%	*	*	100.00%	*	100.00%	*	*	*	*	54.55%
CALGARY NORTHWEST													
Pollutant	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
CO	*	*	*	0.00%	0.00%	0.00%	0.00%	0.00%	*	*	*	*	0.00%
COH	*	*	*	0.00%	0.00%	0.00%	0.00%	0.00%	*	*	*	*	0.00%
NO <sub>2</sub>	*	*	*	0.00%	0.00%	0.00%	0.00%	0.00%	*	*	*	*	0.00%
O <sub>3</sub>	*	*	*	100.00%	100.00%	100.00%	100.00%	100.00%	*	*	*	*	100.00%
CALGARY EAST													
Pollutant	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
CO	0.00%	0.00%	0.00%	*	0.00%	0.00%	0.00%	0.00%	*	0.00%	0.00%	0.00%	0.00%
COH	100.00%	75.00%	0.00%	*	0.00%	0.00%	0.00%	0.00%	*	100.00%	100.00%	100.00%	38.93%
NO <sub>2</sub>	0.00%	25.00%	100.00%	*	0.00%	0.00%	0.00%	0.00%	*	0.00%	0.00%	0.00%	7.63%
O <sub>3</sub>	0.00%	0.00%	0.00%	*	100.00%	100.00%	100.00%	100.00%	*	0.00%	0.00%	0.00%	53.44%
SO <sub>2</sub>	0.00%	0.00%	0.00%	*	0.00%	0.00%	0.00%	0.00%	*	0.00%	0.00%	0.00%	0.00%
FORT SASKATCHEWAN													
Pollutant	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
CO	*	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	*	*	*	0.00%
COH	*	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	*	*	*	0.00%
NO <sub>2</sub>	*	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	*	*	*	0.00%
O <sub>3</sub>	*	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	*	*	*	100.00%
SO <sub>2</sub>	*	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	*	*	*	0.00%
FORT MCMURRAY													
Pollutant	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVG
CO	*	*	*	0.00%	0.00%	0.00%	*	*	*	*	0	0.00%	0.00%
COH	*	*	*	0.00%	0.00%	0.00%	*	*	*	*	*	100.00%	1.59%
NO <sub>2</sub>	*	*	*	0.00%	0.00%	0.00%	*	*	*	*	0	0.00%	0.00%
O <sub>3</sub>	*	*	*	100.00%	100.00%	100.00%	*	*	*	*	0	0.00%	98.41%
SO <sub>2</sub>	*	*	*	0.00%	0.00%	0.00%	*	*	*	*	0	0.00%	0.00%

\*Fair, Poor or Very Poor air quality not reported this month



Wind Summary for 1996  
Edmonton Northwest Monitoring Station

Joint Wind Direction and Speed Frequency Distribution (no. of hours)										
Dir	Wind Speed (km/h)								TOTAL	
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40		
N	72	155	111	27	0	0	0	0	0	365
NNE	56	160	103	40	1	0	0	0	0	360
NE	74	258	128	19	1	0	0	0	0	480
ENE	48	176	95	27	1	0	0	0	0	347
E	50	191	119	57	21	1	0	0	0	439
ESE	28	196	157	78	22	5	0	0	0	486
SE	40	126	168	107	46	18	5	2	0	512
SSE	39	177	158	85	16	0	0	0	0	475
S	70	458	166	32	10	0	0	0	0	736
SSW	69	401	40	6	0	0	0	0	0	516
SW	70	303	39	3	0	0	0	0	0	415
WSW	66	330	151	19	3	0	0	0	0	569
W	85	425	273	91	33	26	1	0	0	934
WNW	83	313	263	175	70	28	6	0	0	938
NW	108	267	184	91	31	9	5	1	0	696
NNW	101	221	134	53	5	1	0	0	0	515
TOTAL	1059	4157	2289	910	260	88	17	3	0	8783
CALM = 1 hours										
MISSING DATA = 0 hours										
Joint Wind Direction and Speed Frequency Distribution (percent)										
Dir	Wind Speed (km/h)								TOTAL	
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40		
N	.8	1.8	1.3	.3	.0	.0	.0	.0	.0	4.2
NNE	.6	1.8	1.2	.5	.0	.0	.0	.0	.0	4.1
NE	.8	2.9	1.5	.2	.0	.0	.0	.0	.0	5.5
ENE	.5	2.0	1.1	.3	.0	.0	.0	.0	.0	4.0
E	.6	2.2	1.4	.6	.2	.0	.0	.0	.0	5.0
ESE	.3	2.2	1.8	.9	.3	.1	.0	.0	.0	5.5
SE	.5	1.4	1.9	1.2	.5	.2	.1	.0	.0	5.8
SSE	.4	2.0	1.8	1.0	.2	.0	.0	.0	.0	5.4
S	.8	5.2	1.9	.4	.1	.0	.0	.0	.0	8.4
SSW	.8	4.6	.5	.1	.0	.0	.0	.0	.0	5.9
SW	.8	3.4	.4	.0	.0	.0	.0	.0	.0	4.7
WSW	.8	3.8	1.7	.2	.0	.0	.0	.0	.0	6.5
W	1.0	4.8	3.1	1.0	.4	.3	.0	.0	.0	10.6
WNW	.9	3.6	3.0	2.0	.8	.3	.1	.0	.0	10.7
NW	1.2	3.0	2.1	1.0	.4	.1	.1	.0	.0	7.9
NNW	1.1	2.5	1.5	.6	.1	.0	.0	.0	.0	5.9
TOTAL	12.1	47.3	26.1	10.4	3.0	1.0	.2	.0	.0	100.0
CALM = .01%										
MISSING DATA = .00%										

Wind Summary for 1996  
Edmonton East Monitoring Station

Joint Wind Direction and Speed Frequency Distribution (no. of hours)										
Dir	Wind Speed (km/h)								TOTAL	
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	>40	
N	138	155	123	80	31	9	1	0	0	537
NNE	172	159	137	45	12	1	0	0	0	526
NE	104	123	106	60	4	0	0	0	0	397
ENE	38	54	46	7	4	1	0	0	0	150
E	47	77	100	47	22	3	0	0	0	296
ESE	61	138	157	68	34	12	2	0	0	472
SE	62	141	187	121	78	23	11	1	0	624
SSE	94	148	204	146	69	33	13	3	0	710
S	100	211	227	171	65	22	1	0	0	797
SSW	114	388	502	96	21	2	0	0	0	1123
SW	51	123	135	36	10	0	0	0	0	355
WSW	29	61	55	34	10	1	0	0	0	190
W	36	82	102	95	61	12	9	2	0	399
WNW	55	176	247	146	98	47	24	6	0	799
NW	51	145	161	130	67	43	9	6	4	616
NNW	82	157	137	103	43	18	10	2	0	552
TOTAL	1234	2338	2626	1385	629	227	80	20	4	8543
CALM = 54 hours										
MISSING DATA = 187 hours										
Joint Wind Direction and Speed Frequency Distribution (percent)										
Dir	Wind Speed (km/h)								TOTAL	
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	>40	
N	1.6	1.8	1.4	.9	.4	.1	.0	.0	.0	6.1
NNE	2.0	1.8	1.6	.5	.1	.0	.0	.0	.0	6.0
NE	1.2	1.4	1.2	.7	.0	.0	.0	.0	.0	4.5
ENE	.4	.6	.5	.1	.0	.0	.0	.0	.0	1.7
E	.5	.9	1.1	.5	.3	.0	.0	.0	.0	3.4
ESE	.7	1.6	1.8	.8	.4	.1	.0	.0	.0	5.4
SE	.7	1.6	2.1	1.4	.9	.3	.1	.0	.0	7.1
SSE	1.1	1.7	2.3	1.7	.8	.4	.1	.0	.0	8.1
S	1.1	2.4	2.6	1.9	.7	.3	.0	.0	.0	9.1
SSW	1.3	4.4	5.7	1.1	.2	.0	.0	.0	.0	12.8
SW	.6	1.4	1.5	.4	.1	.0	.0	.0	.0	4.0
WSW	.3	.7	.6	.4	.1	.0	.0	.0	.0	2.2
W	.4	.9	1.2	1.1	.7	.1	.1	.0	.0	4.5
WNW	.6	2.0	2.8	1.7	1.1	.5	.3	.1	.0	9.1
NW	.6	1.7	1.8	1.5	.8	.5	.1	.1	.0	7.0
NNW	.9	1.8	1.6	1.2	.5	.2	.1	.0	.0	6.3
TOTAL	14.0	26.6	29.9	15.8	7.2	2.6	.9	.2	.0	97.3
CALM = .61%										
MISSING DATA = 2.13%										



Wind Summary for 1996  
Calgary Northwest Monitoring Station

Joint Wind Direction and Speed Frequency Distribution (no. of hours)										
Dir	Wind Speed (km/h)									
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	>40	TOTAL
N	127	191	117	27	10	4	0	0	0	476
NNE	143	169	98	12	1	0	0	0	0	423
NE	140	94	26	0	0	0	0	0	0	260
ENE	154	75	4	0	0	0	0	0	0	233
E	181	131	3	0	0	0	0	0	0	315
ESE	185	139	8	0	0	0	0	0	0	332
SE	277	366	62	2	0	0	0	0	0	707
SSE	147	222	79	12	1	0	0	0	0	461
S	87	94	26	11	1	0	0	0	0	219
SSW	61	39	13	11	2	0	0	0	0	126
SW	64	35	17	13	3	1	1	0	0	134
WSW	53	33	25	20	10	5	1	0	0	147
W	149	124	127	98	73	36	9	1	0	617
WNW	721	1376	299	72	11	2	2	0	0	2483
NW	490	503	104	17	6	4	0	0	0	1124
NNW	160	176	115	39	17	1	2	0	0	510
TOTAL	3139	3767	1123	334	135	53	15	1	0	8567
CALM = 208 hours										
MISSING DATA = 9 hours										
Joint Wind Direction and Speed Frequency Distribution (percent)										
Dir	Wind Speed (km/h)									
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	>40	TOTAL
N	1.4	2.2	1.3	.3	.1	.0	.0	.0	.0	5.4
NNE	1.6	1.9	1.1	.1	.0	.0	.0	.0	.0	4.8
NE	1.6	1.1	.3	.0	.0	.0	.0	.0	.0	3.0
ENE	1.8	.9	.0	.0	.0	.0	.0	.0	.0	2.7
E	2.1	1.5	.0	.0	.0	.0	.0	.0	.0	3.6
ESE	2.1	1.6	.1	.0	.0	.0	.0	.0	.0	3.8
SE	3.2	4.2	.7	.0	.0	.0	.0	.0	.0	8.0
SSE	1.7	2.5	.9	.1	.0	.0	.0	.0	.0	5.2
S	1.0	1.1	.3	.1	.0	.0	.0	.0	.0	2.5
SSW	.7	.4	.1	.1	.0	.0	.0	.0	.0	1.4
SW	.7	.4	.2	.1	.0	.0	.0	.0	.0	1.5
WSW	.6	.4	.3	.2	.1	.1	.0	.0	.0	1.7
W	1.7	1.4	1.4	1.1	.8	.4	.1	.0	.0	7.0
WNW	8.2	15.7	3.4	.8	.1	.0	.0	.0	.0	28.3
NW	5.6	5.7	1.2	.2	.1	.0	.0	.0	.0	12.8
NNW	1.8	2.0	1.3	.4	.2	.0	.0	.0	.0	5.8
TOTAL	35.7	42.9	12.8	3.8	1.5	.6	.2	.0	.0	97.5
CALM = 2.37%										
MISSING DATA = .10%										

Wind Summary for 1996  
Calgary East Monitoring Station

Joint Wind Direction and Speed Frequency Distribution (no. of hours)										
Dir	Wind Speed (km/h)									
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	>40	TOTAL
N	69	189	212	103	28	8	0	0	0	609
NNE	78	148	106	28	3	0	0	0	0	363
NE	76	73	27	3	0	0	0	0	0	179
ENE	119	162	38	2	0	0	0	0	0	321
E	147	202	58	8	1	0	0	0	0	416
ESE	233	205	148	29	1	1	0	0	0	617
SE	241	231	186	91	10	7	2	0	0	768
SSE	256	158	99	43	4	2	0	0	0	562
S	387	94	29	16	6	1	0	0	0	533
SSW	292	48	18	6	7	1	0	0	0	372
SW	295	79	25	6	10	2	2	0	0	419
WSW	446	101	46	23	7	6	1	0	0	630
W	436	240	116	73	60	20	7	1	0	953
WNW	195	276	118	46	12	0	0	0	0	647
NW	124	201	143	50	13	5	1	2	0	539
NNW	97	237	208	90	27	12	8	0	0	679
TOTAL	3491	2644	1577	617	189	65	21	3	0	8607
CALM = 126 hours										
MISSING DATA = 51 hours										
Joint Wind Direction and Speed Frequency Distribution (percent)										
Dir	Wind Speed (km/h)									
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	>40	TOTAL
N	.8	2.2	2.4	1.2	.3	.1	.0	.0	.0	6.9
NNE	.9	1.7	1.2	.3	.0	.0	.0	.0	.0	4.1
NE	.9	.8	.3	.0	.0	.0	.0	.0	.0	2.0
ENE	1.4	1.8	.4	.0	.0	.0	.0	.0	.0	3.7
E	1.7	2.3	.7	.1	.0	.0	.0	.0	.0	4.7
ESE	2.7	2.3	1.7	.3	.0	.0	.0	.0	.0	7.0
SE	2.7	2.6	2.1	1.0	.1	.1	.0	.0	.0	8.7
SSE	2.9	1.8	1.1	.5	.0	.0	.0	.0	.0	6.4
S	4.4	1.1	.3	.2	.1	.0	.0	.0	.0	6.1
SSW	3.3	.5	.2	.1	.1	.0	.0	.0	.0	4.2
SW	3.4	.9	.3	.1	.1	.0	.0	.0	.0	4.8
WSW	5.1	1.1	.5	.3	.1	.1	.0	.0	.0	7.2
W	5.0	2.7	1.3	.8	.7	.2	.1	.0	.0	10.8
WNW	2.2	3.1	1.3	.5	.1	.0	.0	.0	.0	7.4
NW	1.4	2.3	1.6	.6	.1	.1	.0	.0	.0	6.1
NNW	1.1	2.7	2.4	1.0	.3	.1	.1	.0	.0	7.7
TOTAL	39.7	30.1	18.0	7.0	2.2	.7	.2	.0	.0	98.0
CALM = 1.43%										
MISSING DATA = .58%										



Wind Summary for 1996  
Fort Saskatchewan Monitoring Station

Joint Wind Direction and Speed Frequency Distribution (no. of hours)										
Dir	Wind Speed (km/h)									TOTAL
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	>40	
N	221	211	67	12	0	0	0	0	0	511
NNE	120	141	135	21	0	0	0	0	0	417
NE	120	73	29	0	0	0	0	0	0	222
ENE	151	225	51	2	0	0	0	0	0	429
E	190	215	58	7	0	0	0	0	0	470
ESE	161	178	119	32	10	1	0	0	0	501
SE	216	173	104	19	12	0	0	0	0	524
SSE	200	128	37	11	0	0	0	0	0	376
S	186	163	33	0	0	0	0	0	0	382
SSW	367	183	21	1	0	0	0	0	0	572
SW	522	357	22	0	0	0	0	0	0	901
WSW	318	242	28	2	0	0	0	0	0	590
W	249	362	78	9	0	0	0	0	0	698
WNW	221	279	213	74	21	0	0	0	0	808
NW	212	248	176	80	32	9	2	1	0	760
NNW	194	189	143	61	21	7	1	0	0	616
TOTAL	3648	3367	1314	331	96	17	3	1	0	8777
CALM = 5 hours										
MISSING DATA = 2 hours										
Joint Wind Direction and Speed Frequency Distribution (percent)										
Dir	Wind Speed (km/h)									TOTAL
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	>40	
N	2.5	2.4	.8	.1	.0	.0	.0	.0	.0	5.8
NNE	1.4	1.6	1.5	.2	.0	.0	.0	.0	.0	4.7
NE	1.4	.8	.3	.0	.0	.0	.0	.0	.0	2.5
ENE	1.7	2.6	.6	.0	.0	.0	.0	.0	.0	4.9
E	2.2	2.4	.7	.1	.0	.0	.0	.0	.0	5.4
ESE	1.8	2.0	1.4	.4	.1	.0	.0	.0	.0	5.7
SE	2.5	2.0	1.2	.2	.1	.0	.0	.0	.0	6.0
SSE	2.3	1.5	.4	.1	.0	.0	.0	.0	.0	4.3
S	2.1	1.9	.4	.0	.0	.0	.0	.0	.0	4.3
SSW	4.2	2.1	.2	.0	.0	.0	.0	.0	.0	6.5
SW	5.9	4.1	.3	.0	.0	.0	.0	.0	.0	10.3
WSW	3.6	2.8	.3	.0	.0	.0	.0	.0	.0	6.7
W	2.8	4.1	.9	.1	.0	.0	.0	.0	.0	7.9
WNW	2.5	3.2	2.4	.8	.2	.0	.0	.0	.0	9.2
NW	2.4	2.8	2.0	.9	.4	.1	.0	.0	.0	8.7
NNW	2.2	2.2	1.6	.7	.2	.1	.0	.0	.0	7.0
TOTAL	41.5	38.3	15.0	3.8	1.1	.2	.0	.0	.0	99.9
CALM = .06%										
MISSING DATA = .02%										

Wind Summary for 1996  
Fort McMurray Monitoring Station

Joint Wind Direction and Speed Frequency Distribution (no. of hours)											
Dir	Wind Speed (km/h)										
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	>40	TOTAL	
N	334	577	330	86	13	4	0	0	0	1344	
NNE	158	44	11	0	0	0	0	0	0	213	
NE	174	21	4	0	0	0	0	0	0	199	
ENE	150	42	7	0	0	0	0	0	0	199	
E	185	39	2	0	0	0	0	0	0	226	
ESE	183	86	22	0	0	0	0	0	0	291	
SE	619	577	133	6	0	0	0	0	0	1335	
SSE	675	473	50	10	2	0	0	0	0	1210	
S	333	45	5	0	0	0	0	0	0	383	
SSW	196	14	0	0	0	0	0	0	0	210	
SW	357	195	53	1	0	0	0	0	0	606	
WSW	358	133	102	29	0	0	0	0	0	622	
W	295	72	77	25	5	0	0	0	0	474	
WNW	203	61	72	42	10	1	0	0	0	389	
NW	228	91	57	34	4	0	0	0	0	414	
NNW	307	234	83	32	2	1	0	0	0	659	
TOTAL	4755	2704	1008	265	36	6	0	0	0	8774	
CALM = 3 hours											
MISSING DATA = 7 hours											
Joint Wind Direction and Speed Frequency Distribution (percent)											
Dir	Wind Speed (km/h)										
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	>40	TOTAL	
N	3.8	6.6	3.8	1.0	.1	.0	.0	.0	.0	15.3	
NNE	1.8	.5	.1	.0	.0	.0	.0	.0	.0	2.4	
NE	2.0	.2	.0	.0	.0	.0	.0	.0	.0	2.3	
ENE	1.7	.5	.1	.0	.0	.0	.0	.0	.0	2.3	
E	2.1	.4	.0	.0	.0	.0	.0	.0	.0	2.6	
ESE	2.1	1.0	.3	.0	.0	.0	.0	.0	.0	3.3	
SE	7.0	6.6	1.5	.1	.0	.0	.0	.0	.0	15.2	
SSE	7.7	5.4	.6	.1	.0	.0	.0	.0	.0	13.8	
S	3.8	.5	.1	.0	.0	.0	.0	.0	.0	4.4	
SSW	2.2	.2	.0	.0	.0	.0	.0	.0	.0	2.4	
SW	4.1	2.2	.6	.0	.0	.0	.0	.0	.0	6.9	
WSW	4.1	1.5	1.2	.3	.0	.0	.0	.0	.0	7.1	
W	3.4	.8	.9	.3	.1	.0	.0	.0	.0	5.4	
WNW	2.3	.7	.8	.5	.1	.0	.0	.0	.0	4.4	
NW	2.6	1.0	.6	.4	.0	.0	.0	.0	.0	4.7	
NNW	3.5	2.7	.9	.4	.0	.0	.0	.0	.0	7.5	
TOTAL	54.1	30.8	11.5	3.0	.4	.1	.0	.0	.0	99.9	
CALM = .03%											
MISSING DATA = .08%											



Wind Summary for 1996  
Fort MacKay Monitoring Station

Joint Wind Direction and Speed Frequency Distribution (no. of hours)										
	Wind Speed (km/h)									
Dir	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	>40	TOTAL
N	487	423	114	7	0	0	0	0	0	1031
NNE	307	324	112	5	0	0	0	0	0	748
NE	182	108	15	4	0	0	0	0	0	309
ENE	120	20	7	2	0	0	0	0	0	149
E	104	17	7	0	0	0	0	0	0	128
ESE	123	30	20	1	0	0	0	0	0	174
SE	210	137	58	1	0	0	0	0	0	406
SSE	379	312	57	13	1	0	0	0	0	762
S	894	377	5	0	0	0	0	0	0	1276
SSW	738	149	13	0	0	0	0	0	0	900
SW	325	154	22	0	0	0	0	0	0	501
WSW	219	89	6	0	0	0	0	0	0	314
W	228	92	1	0	0	0	0	0	0	321
WNW	242	89	10	0	0	0	0	0	0	341
NW	238	83	14	0	0	0	0	0	0	335
NNW	376	246	64	4	0	0	0	0	0	690
TOTAL	5172	2650	525	37	1	0	0	0	0	8385
CALM = 42 hours										
MISSING DATA = 357 hours										
Joint Wind Direction and Speed Frequency Distribution (percent)										
	Wind Speed (km/h)									
Dir	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	>40	TOTAL
N	5.5	4.8	1.3	.1	.0	.0	.0	.0	.0	11.7
NNE	3.5	3.7	1.3	.1	.0	.0	.0	.0	.0	8.5
NE	2.1	1.2	.2	.0	.0	.0	.0	.0	.0	3.5
ENE	1.4	.2	.1	.0	.0	.0	.0	.0	.0	1.7
E	1.2	.2	.1	.0	.0	.0	.0	.0	.0	1.5
ESE	1.4	.3	.2	.0	.0	.0	.0	.0	.0	2.0
SE	2.4	1.6	.7	.0	.0	.0	.0	.0	.0	4.6
SSE	4.3	3.6	.6	.1	.0	.0	.0	.0	.0	8.7
S	10.2	4.3	.1	.0	.0	.0	.0	.0	.0	14.5
SSW	8.4	1.7	.1	.0	.0	.0	.0	.0	.0	10.2
SW	3.7	1.8	.3	.0	.0	.0	.0	.0	.0	5.7
WSW	2.5	1.0	.1	.0	.0	.0	.0	.0	.0	3.6
W	2.6	1.0	.0	.0	.0	.0	.0	.0	.0	3.7
WNW	2.8	1.0	.1	.0	.0	.0	.0	.0	.0	3.9
NW	2.7	.9	.2	.0	.0	.0	.0	.0	.0	3.8
NNW	4.3	2.8	.7	.0	.0	.0	.0	.0	.0	7.9
TOTAL	58.9	30.2	6.0	.4	.0	.0	.0	.0	.0	95.5
CALM = .48%										
MISSING DATA = 4.06%										

Wind Summary for 1996  
 Royal Park Monitoring Station (Vegreville)

Joint Wind Direction and Speed Frequency Distribution (no. of hours)										
Dir	Wind Speed (km/h)									
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	>40	TOTAL
N	17	58	75	123	93	42	28	6	6	448
NNE	18	53	72	90	104	74	57	28	23	519
NE	31	72	102	110	91	96	75	40	32	649
ENE	25	46	86	110	71	53	23	13	0	427
E	27	59	81	112	65	34	21	6	0	405
ESE	23	44	55	91	70	51	13	5	0	352
SE	27	52	80	109	83	22	5	0	0	378
SSE	47	92	99	121	72	23	10	5	2	471
S	53	123	92	124	74	37	11	15	16	545
SSW	27	79	69	84	49	40	10	4	9	371
SW	29	122	118	102	112	46	29	11	3	572
WSW	27	118	132	110	112	51	28	10	2	590
W	27	125	209	134	88	30	19	8	6	646
WNW	25	104	121	103	75	34	17	3	4	486
NW	34	117	87	92	88	15	14	4	7	458
NNW	32	59	56	112	70	22	11	11	13	386
TOTAL	469	1323	1534	1727	1317	670	371	169	123	7703
CALM = 75 hours										
MISSING DATA = 1006 hours										
Joint Wind Direction and Speed Frequency Distribution (percent)										
Dir	Wind Speed (km/h)									
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	>40	TOTAL
N	.2	.7	.9	1.4	1.1	.5	.3	.1	.1	5.1
NNE	.2	.6	.8	1.0	1.2	.8	.6	.3	.3	5.9
NE	.4	.8	1.2	1.3	1.0	1.1	.9	.5	.4	7.4
ENE	.3	.5	1.0	1.3	.8	.6	.3	.1	.0	4.9
E	.3	.7	.9	1.3	.7	.4	.2	.1	.0	4.6
ESE	.3	.5	.6	1.0	.8	.6	.1	.1	.0	4.0
SE	.3	.6	.9	1.2	.9	.3	.1	.0	.0	4.3
SSE	.5	1.0	1.1	1.4	.8	.3	.1	.1	.0	5.4
S	.6	1.4	1.0	1.4	.8	.4	.1	.2	.2	6.2
SSW	.3	.9	.8	1.0	.6	.5	.1	.0	.1	4.2
SW	.3	1.4	1.3	1.2	1.3	.5	.3	.1	.0	6.5
WSW	.3	1.3	1.5	1.3	1.3	.6	.3	.1	.0	6.7
W	.3	1.4	2.4	1.5	1.0	.3	.2	.1	.1	7.4
WNW	.3	1.2	1.4	1.2	.9	.4	.2	.0	.0	5.5
NW	.4	1.3	1.0	1.0	1.0	.2	.2	.0	.1	5.2
NNW	.4	.7	.6	1.3	.8	.3	.1	.1	.1	4.4
TOTAL	5.3	15.1	17.5	19.7	15.0	7.6	4.2	1.9	1.4	87.7
CALM = .85%										
MISSING DATA = 11.45%										



Wind Summary for 1996  
Springbank Airport Monitoring Station

Joint Wind Direction and Speed Frequency Distribution (no. of hours)										
Dir	Wind Speed (km/h)									TOTAL
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	>40	
N	49	74	69	38	19	4	1	1	0	255
NNE	33	57	53	34	21	4	2	0	0	204
NE	35	48	40	19	9	5	1	0	0	157
ENE	39	58	27	16	1	1	0	0	0	142
E	31	46	46	16	1	0	0	0	0	140
ESE	30	49	32	17	4	2	0	0	0	134
SE	61	96	120	91	55	14	3	1	0	441
SSE	56	70	45	46	25	6	0	3	1	252
S	54	34	12	3	2	0	0	0	0	105
SSW	45	17	3	4	1	3	0	0	0	73
SW	48	18	8	2	2	3	1	0	0	82
WSW	38	33	31	30	7	5	4	4	6	158
W	61	60	75	101	102	75	50	32	29	585
WNW	106	116	71	29	24	8	6	1	1	362
NW	175	359	231	83	29	5	1	2	2	887
NNW	88	95	70	58	13	2	3	1	0	330
TOTAL	949	1230	933	587	315	137	72	45	39	4307
CALM = 59 hours										
MISSING DATA = 2210 hours										
Joint Wind Direction and Speed Frequency Distribution (percent)										
Dir	Wind Speed (km/h)									TOTAL
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	>40	
N	.7	1.1	1.0	.6	.3	.1	.0	.0	.0	3.9
NNE	.5	.9	.8	.5	.3	.1	.0	.0	.0	3.1
NE	.5	.7	.6	.3	.1	.1	.0	.0	.0	2.4
ENE	.6	.9	.4	.2	.0	.0	.0	.0	.0	2.2
E	.5	.7	.7	.2	.0	.0	.0	.0	.0	2.1
ESE	.5	.7	.5	.3	.1	.0	.0	.0	.0	2.0
SE	.9	1.5	1.8	1.4	.8	.2	.0	.0	.0	6.7
SSE	.9	1.1	.7	.7	.4	.1	.0	.0	.0	3.8
S	.8	.5	.2	.0	.0	.0	.0	.0	.0	1.6
SSW	.7	.3	.0	.1	.0	.0	.0	.0	.0	1.1
SW	.7	.3	.1	.0	.0	.0	.0	.0	.0	1.2
WSW	.6	.5	.5	.5	.1	.1	.1	.1	.1	2.4
W	.9	.9	1.1	1.5	1.6	1.1	.8	.5	.4	8.9
WNW	1.6	1.8	1.1	.4	.4	.1	.1	.0	.0	5.5
NW	2.7	5.5	3.5	1.3	.4	.1	.0	.0	.0	13.5
NNW	1.3	1.4	1.1	.9	.2	.0	.0	.0	.0	5.0
TOTAL	14.4	18.7	14.2	8.9	4.8	2.1	1.1	.7	.6	65.5
CALM = .90%										
MISSING DATA = 33.61%										





NH<sub>3</sub> Summary Statistics for 1996  
Fort Saskatchewan Monitoring Station  
Units are PPM (parts per million)

Ambient 1-hour average guideline = 2.0 PPM											
BY SEASON											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2
Spring	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2
Summer	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.2
Autumn	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.5
BY SEASON											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances 1 hour					
Winter	.00	.00	.01	.2	2144	0 (0.00%)					
Spring	.00	.00	.01	.2	2185	0 (0.00%)					
Summer	.00	.00	.01	.2	2175	0 (0.00%)					
Autumn	.00	.00	.01	.5	2003	0 (0.00%)					
BY MONTH											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Feb	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.2
Mar	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1
Apr	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
May	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.2
Jun	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.2
Jul	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Aug	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Sep	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Oct	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.5
Nov	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Dec	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1
BY MONTH											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances 1 hour					
Jan	.00	.00	.01	.0	730	0 (0.00%)					
Feb	.00	.00	.02	.2	686	0 (0.00%)					
Mar	.00	.00	.00	.1	732	0 (0.00%)					
Apr	.00	.00	.01	.0	709	0 (0.00%)					
May	.00	.00	.02	.2	744	0 (0.00%)					
Jun	.00	.00	.01	.2	705	0 (0.00%)					
Jul	.00	.00	.00	.0	726	0 (0.00%)					
Aug	.00	.00	.00	.0	744	0 (0.00%)					
Sep	.00	.00	.00	.0	704	0 (0.00%)					
Oct	.00	.00	.02	.5	684	0 (0.00%)					
Nov	.00	.00	.00	.0	615	0 (0.00%)					
Dec	.00	.00	.01	.1	728	0 (0.00%)					
BY YEAR											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.5
BY YEAR											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances 1 hour					
1996	.00	.00	.01	.5	8507	0 (0.00%)					
n/a - not applicable                      * - no data											

Annual Average Concentration	
Year: 1996	
Pollutant: NH <sub>3</sub> [ppm]	
Year	Fort Saskatchewan
1976	*
1977	*
1978	*
1979	*
1980	*
1981	0.00
1982	0.00
1983	0.00
1984	0.03
1985	0.01
1986	0.03
1987	0.01
1988	0.02
1989	0.00a
1990	0.01
1991	0.01
1992	b
1993	b
1994	*
1995	0.00
1996	0.00

a 50% to 75% of data available  
b less than 50% of data available  
\* no data available

CO Summary Statistics for 1996  
Edmonton Central Monitoring Station  
Units are PPM (parts per million)

Ambient 1-hour average guideline = 13.0 PPM											
Ambient 8-hour average guideline = 5.0 PPM											
-----											
BY SEASON											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.0	.2	.2	.3	.5	.9	1.5	2.3	3.2	5.1	7.9
Spring	.0	.0	.0	.1	.3	.6	.8	1.2	1.5	2.4	5.0
Summer	.0	.0	.0	.1	.2	.4	.6	.9	1.0	1.9	4.9
Autumn	.0	.0	.0	.0	.1	.3	.7	1.3	1.9	3.2	7.9
-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	8 hour				
Winter	1.17	.86	1.01	7.9	2176	0(0.00%)	0(0.00%)				
Spring	.64	.31	.48	5.0	2201	0(0.00%)	0(0.00%)				
Summer	.43	.16	.39	4.9	2199	0(0.00%)	0(0.00%)				
Autumn	.54	.06	.68	7.9	2129	0(0.00%)	0(0.00%)				
-----											
BY MONTH											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.0	.1	.2	.3	.5	.8	1.5	2.4	3.3	5.3	7.6
Feb	.2	.2	.3	.4	.6	1.0	1.5	2.4	3.1	5.4	7.2
Mar	.2	.2	.3	.4	.5	.7	1.0	1.4	1.9	3.1	5.0
Apr	.0	.0	.0	.1	.2	.5	.8	1.1	1.4	2.2	3.9
May	.0	.0	.0	.1	.3	.5	.7	1.0	1.2	1.5	1.8
Jun	.0	.0	.1	.1	.3	.5	.7	1.0	1.2	2.0	2.6
Jul	.0	.0	.0	.0	.1	.3	.5	.7	.9	1.2	1.5
Aug	.0	.0	.0	.0	.1	.3	.6	.8	1.0	2.3	4.9
Sep	.0	.0	.0	.0	.0	.2	.5	.8	1.2	2.1	3.1
Oct	.0	.0	.0	.0	.1	.4	.8	1.3	1.7	3.0	5.5
Nov	.0	.0	.0	.0	.1	.5	.9	1.8	2.4	4.1	7.9
Dec	.1	.1	.2	.3	.4	.8	1.4	2.2	3.2	5.1	7.9
-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	8 hour				
Jan	1.17	.81	1.02	7.6	740	0(0.00%)	0(0.00%)				
Feb	1.25	.98	.98	7.0	694	0(0.00%)	0(0.00%)				
Mar	.84	.72	.54	4.8	742	0(0.00%)	0(0.00%)				
Apr	.55	.19	.47	3.9	720	0(0.00%)	0(0.00%)				
May	.53	.23	.35	1.8	739	0(0.00%)	0(0.00%)				
Jun	.53	.31	.39	2.6	713	0(0.00%)	0(0.00%)				
Jul	.35	.11	.29	1.5	742	0(0.00%)	0(0.00%)				
Aug	.42	.13	.45	4.9	744	0(0.00%)	0(0.00%)				
Sep	.32	.01	.45	3.1	705	0(0.00%)	0(0.00%)				
Oct	.59	.12	.60	5.5	740	0(0.00%)	0(0.00%)				
Nov	.71	.11	.86	7.9	684	0(0.00%)	0(0.00%)				
Dec	1.11	.79	1.02	7.8	742	0(0.00%)	0(0.00%)				
-----											
BY YEAR											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.0	.0	.0	.1	.2	.5	.9	1.5	2.0	3.7	7.9
-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	8 hour				
1996	.70	.22	.74	7.9	8705	0(0.00%)	0(0.00%)				
-----											

n/a - not applicable

\* - no data



CO Summary Statistics for 1996  
Edmonton Northwest Monitoring Station  
Units are PPM (parts per million)

Ambient 1-hour average guideline = 13.0 PPM											
Ambient 8-hour average guideline = 5.0 PPM											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.0	.1	.2	.3	.4	.8	1.6	2.7	3.6	5.5	10.6
Spring	.2	.2	.3	.3	.4	.5	.7	1.1	1.5	2.6	11.8
Summer	.2	.2	.3	.3	.4	.5	.6	.9	1.2	2.3	5.0
Autumn	.0	.0	.1	.1	.3	.4	.8	1.5	2.1	3.7	6.3
-----BY SEASON-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	8 hour				
Winter	1.20	.77	1.16	10.6	2090	0(0.00%)	1(0.38%)				
Spring	.63	.53	.58	11.6	2203	0(0.00%)	1(0.36%)				
Summer	.60	.54	.38	4.8	2168	0(0.00%)	0(0.00%)				
Autumn	.67	.34	.72	6.3	2178	0(0.00%)	0(0.00%)				
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.2	.2	.3	.3	.4	.7	1.5	2.7	3.4	5.6	10.6
Feb	.2	.3	.3	.4	.5	.9	1.6	2.8	3.7	5.2	8.6
Mar	.2	.2	.3	.3	.4	.5	.9	1.4	2.0	3.2	11.8
Apr	.3	.3	.3	.3	.4	.5	.7	1.1	1.5	3.0	7.5
May	.2	.2	.3	.3	.4	.4	.6	.8	1.0	1.4	2.5
Jun	.2	.2	.3	.3	.4	.5	.7	.9	1.3	2.0	2.6
Jul	.2	.3	.3	.4	.4	.5	.6	.8	1.0	1.7	2.7
Aug	.2	.2	.3	.3	.4	.5	.7	1.0	1.6	3.2	5.0
Sep	.0	.0	.1	.2	.3	.4	.6	.9	1.3	3.0	4.9
Oct	.0	.0	.1	.1	.3	.5	.9	1.5	2.1	3.8	6.3
Nov	.0	.0	.1	.1	.3	.5	1.0	1.8	2.5	3.9	5.7
Dec	.0	.0	.1	.2	.3	.7	1.6	2.8	3.9	5.8	9.0
-----BY MONTH-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	8 hour				
Jan	1.16	.81	1.14	10.4	744	0(0.00%)	1(1.08%)				
Feb	1.28	.97	1.10	8.4	694	0(0.00%)	0(0.00%)				
Mar	.76	.59	.79	11.6	741	0(0.00%)	1(1.09%)				
Apr	.64	.54	.52	7.2	720	0(0.00%)	0(0.00%)				
May	.50	.46	.25	2.3	742	0(0.00%)	0(0.00%)				
Jun	.59	.53	.33	2.4	718	0(0.00%)	0(0.00%)				
Jul	.56	.52	.26	2.5	721	0(0.00%)	0(0.00%)				
Aug	.65	.56	.50	4.8	729	0(0.00%)	0(0.00%)				
Sep	.54	.33	.54	4.9	717	0(0.00%)	0(0.00%)				
Oct	.70	.33	.74	6.3	741	0(0.00%)	0(0.00%)				
Nov	.77	.34	.82	5.7	720	0(0.00%)	0(0.00%)				
Dec	1.17	.56	1.23	9.0	652	0(0.00%)	0(0.00%)				
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.0	.1	.2	.3	.4	.5	.8	1.6	2.3	4.1	11.8
-----BY YEAR-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	8 hour				
1996	.77	.49	.80	11.8	8639	0(0.00%)	2(0.19%)				
-----											
n/a - not applicable				* - no data							

n/a - not applicable

\* - no data

Wind Summary for 1996  
Edmonton Northwest Monitoring Station

\*\* calculation is for exceedances of the 8-hour guideline for CO \*\*

Joint Wind Direction and Speed Frequency Distribution (no. of hours)										
Dir	Wind Speed (km/h)									TOTAL
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	>40	
N	1	0	0	0	0	0	0	0	0	1
NNE	0	0	0	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0	0	0	0
ENE	1	0	0	0	0	0	0	0	0	1
E	0	2	0	0	0	0	0	0	0	2
ESE	1	0	0	0	0	0	0	0	0	1
SE	0	1	0	0	0	0	0	0	0	1
SSE	1	0	0	0	0	0	0	0	0	1
S	0	1	0	0	0	0	0	0	0	1
SSW	2	2	0	0	0	0	0	0	0	4
SW	0	0	0	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0	0	0	0
WNW	0	2	0	0	0	0	0	0	0	2
NW	1	1	0	0	0	0	0	0	0	2
NNW	0	0	0	0	0	0	0	0	0	0
TOTAL	7	9	0	0	0	0	0	0	0	16
CALM = 0 hours										
MISSING DATA = 0 hours										

Joint Wind Direction and Speed Frequency Distribution (percent)										
Dir	Wind Speed (km/h)									TOTAL
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	>40	
N	6.3	.0	.0	.0	.0	.0	.0	.0	.0	6.3
NNE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
ENE	6.3	.0	.0	.0	.0	.0	.0	.0	.0	6.3
E	.0	12.5	.0	.0	.0	.0	.0	.0	.0	12.5
ESE	6.3	.0	.0	.0	.0	.0	.0	.0	.0	6.3
SE	.0	6.3	.0	.0	.0	.0	.0	.0	.0	6.3
SSE	6.3	.0	.0	.0	.0	.0	.0	.0	.0	6.3
S	.0	6.3	.0	.0	.0	.0	.0	.0	.0	6.3
SSW	12.5	12.5	.0	.0	.0	.0	.0	.0	.0	25.0
SW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
WSW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
W	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
WNW	.0	12.5	.0	.0	.0	.0	.0	.0	.0	12.5
NW	6.3	6.3	.0	.0	.0	.0	.0	.0	.0	12.5
NNW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
TOTAL	43.8	56.3	.0	.0	.0	.0	.0	.0	.0	100.0
CALM = .00%										
MISSING DATA = .00%										

CO Summary Statistics for 1996  
Edmonton East Monitoring Station  
Units are PPM (parts per million)

Ambient 1-hour average guideline = 13.0 PPM											
Ambient 8-hour average guideline = 5.0 PPM											
BY SEASON											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.0	.2	.2	.3	.3	.5	.8	1.3	1.6	2.4	4.9
Spring	.0	.1	.2	.2	.3	.3	.4	.6	.7	1.2	2.3
Summer	.0	.0	.0	.1	.2	.3	.4	.5	.7	1.0	2.1
Autumn	.0	.0	.2	.2	.3	.3	.5	.8	1.1	1.9	2.5
BY SEASON											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	8 hour				
Winter	.64	.50	.49	4.9	2148	0(0.00%)	0(0.00%)				
Spring	.38	.34	.19	2.3	2200	0(0.00%)	0(0.00%)				
Summer	.32	.19	.20	2.1	2189	0(0.00%)	0(0.00%)				
Autumn	.44	.20	.34	2.5	2164	0(0.00%)	0(0.00%)				
BY MONTH											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.2	.2	.2	.3	.3	.5	.9	1.4	1.7	2.8	4.9
Feb	.0	.1	.2	.3	.4	.5	.8	1.1	1.5	2.1	2.7
Mar	.0	.1	.3	.3	.3	.3	.5	.7	.9	1.5	2.3
Apr	.0	.1	.2	.2	.3	.3	.4	.6	.7	1.1	1.4
May	.2	.2	.2	.2	.3	.3	.4	.5	.5	.7	.9
Jun	.0	.0	.1	.1	.3	.3	.4	.6	.8	1.1	1.3
Jul	.0	.0	.1	.1	.2	.3	.4	.5	.5	.8	1.1
Aug	.0	.0	.0	.1	.2	.3	.4	.5	.7	1.3	2.1
Sep	.0	.0	.0	.1	.3	.4	.4	.5	.6	1.0	1.3
Oct	.1	.2	.2	.2	.3	.3	.5	.8	1.1	1.9	2.4
Nov	.0	.0	.2	.2	.2	.4	.7	1.1	1.5	2.1	2.5
Dec	.2	.2	.2	.2	.3	.4	.8	1.3	1.6	2.4	3.5
BY MONTH											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	8 hour				
Jan	.69	.55	.56	4.7	740	0(0.00%)	0(0.00%)				
Feb	.62	.45	.39	2.7	666	0(0.00%)	0(0.00%)				
Mar	.43	.38	.24	2.3	743	0(0.00%)	0(0.00%)				
Apr	.37	.31	.18	1.4	720	0(0.00%)	0(0.00%)				
May	.34	.33	.11	.7	737	0(0.00%)	0(0.00%)				
Jun	.35	.24	.19	1.3	714	0(0.00%)	0(0.00%)				
Jul	.29	.19	.15	1.1	740	0(0.00%)	0(0.00%)				
Aug	.32	.15	.24	2.1	735	0(0.00%)	0(0.00%)				
Sep	.35	.20	.20	1.3	715	0(0.00%)	0(0.00%)				
Oct	.44	.37	.32	2.3	738	0(0.00%)	0(0.00%)				
Nov	.52	.31	.43	2.5	711	0(0.00%)	0(0.00%)				
Dec	.62	.49	.49	3.3	742	0(0.00%)	0(0.00%)				
BY YEAR											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.0	.0	.1	.2	.3	.3	.5	.8	1.1	1.9	4.9
BY YEAR											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	8 hour				
1996	.44	.24	.35	4.9	8701	0(0.00%)	0(0.00%)				
n/a - not applicable * - no data											

n/a - not applicable

\* - no data



CO Summary Statistics for 1996  
 Calgary Central Monitoring Station  
 Units are PPM (parts per million)

Ambient 1-hour average guideline = 13.0 PPM											
Ambient 8-hour average guideline = 5.0 PPM											
BY SEASON											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.2	.2	.3	.4	.6	.9	1.6	2.7	3.7	6.3	11.4
Spring	.2	.3	.3	.4	.5	.7	1.0	1.4	1.8	4.0	13.3
Summer	.1	.2	.2	.3	.4	.6	.8	1.1	1.4	2.0	6.6
Autumn	.2	.2	.3	.3	.5	.7	1.1	1.8	2.3	4.8	7.6
BY SEASON											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	8 hour				
Winter	1.32	.99	1.21	11.2	2102	0 (0.00%)	2 (0.77%)				
Spring	.86	.72	.84	13.1	2196	2 (0.09%)	2 (0.73%)				
Summer	.66	.57	.42	6.5	2196	0 (0.00%)	0 (0.00%)				
Autumn	.95	.74	.81	7.4	2172	0 (0.00%)	0 (0.00%)				
BY MONTH											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.2	.2	.3	.4	.5	.9	1.6	2.7	3.9	6.2	10.4
Feb	.2	.3	.3	.4	.6	.9	1.6	2.7	3.7	6.1	7.9
Mar	.3	.3	.3	.4	.6	.8	1.1	1.7	2.7	8.0	13.3
Apr	.2	.3	.3	.4	.5	.6	.9	1.2	1.6	2.7	3.4
May	.2	.3	.3	.4	.5	.7	1.0	1.2	1.5	2.1	2.3
Jun	.1	.2	.3	.3	.4	.6	.8	1.0	1.2	1.8	2.6
Jul	.2	.2	.3	.3	.4	.6	.8	1.1	1.4	1.9	2.7
Aug	.2	.2	.2	.2	.3	.5	.8	1.2	1.5	2.4	6.6
Sep	.2	.2	.2	.3	.4	.6	.9	1.3	1.6	2.3	3.2
Oct	.2	.2	.3	.3	.5	.7	1.2	1.7	2.2	4.5	7.6
Nov	.2	.2	.3	.4	.6	.9	1.4	2.3	3.0	6.3	7.5
Dec	.2	.3	.4	.4	.6	.9	1.6	2.5	3.5	6.4	11.4
BY MONTH											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	8 hour				
Jan	1.32	.97	1.25	10.2	723	0 (0.00%)	1 (1.11%)				
Feb	1.35	1.02	1.17	7.7	693	0 (0.00%)	0 (0.00%)				
Mar	1.10	.84	1.29	13.0	741	2 (0.27%)	2 (2.17%)				
Apr	.74	.66	.43	3.2	716	0 (0.00%)	0 (0.00%)				
May	.75	.67	.38	2.1	739	0 (0.00%)	0 (0.00%)				
Jun	.66	.60	.32	2.5	717	0 (0.00%)	0 (0.00%)				
Jul	.67	.60	.36	2.5	740	0 (0.00%)	0 (0.00%)				
Aug	.64	.52	.54	6.4	739	0 (0.00%)	0 (0.00%)				
Sep	.71	.59	.46	3.0	716	0 (0.00%)	0 (0.00%)				
Oct	.94	.76	.75	7.4	739	0 (0.00%)	0 (0.00%)				
Nov	1.19	.92	1.05	7.3	717	0 (0.00%)	0 (0.00%)				
Dec	1.29	.98	1.23	11.2	686	0 (0.00%)	1 (1.18%)				
BY YEAR											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.1	.2	.3	.3	.5	.7	1.1	1.7	2.3	5.1	13.3
BY YEAR											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	8 hour				
1996	.94	.74	.90	13.2	8666	2 (0.02%)	4 (0.37%)				

n/a - not applicable

\* - no data

CO Summary Statistics for 1996  
 Calgary Northwest Monitoring Station  
 Units are PPM (parts per million)

Ambient 1-hour average guideline = 13.0 PPM											
Ambient 8-hour average guideline = 5.0 PPM											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.1	.2	.2	.3	.3	.5	.8	1.5	2.2	3.9	7.2
Spring	.2	.2	.2	.3	.4	.4	.6	.7	.9	2.0	4.1
Summer	.1	.2	.2	.3	.3	.4	.5	.6	.8	1.1	2.8
Autumn	.1	.2	.2	.3	.3	.4	.6	1.0	1.3	2.5	5.7
-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	8 hour				
Winter	.75	.56	.75	7.1	2052	0 (0.00%)	0 (0.00%)				
Spring	.51	.46	.33	3.9	2179	0 (0.00%)	0 (0.00%)				
Summer	.44	.41	.19	2.7	2195	0 (0.00%)	0 (0.00%)				
Autumn	.55	.46	.44	5.6	2167	0 (0.00%)	0 (0.00%)				
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.2	.2	.2	.2	.3	.5	.9	1.7	2.3	3.8	7.2
Feb	.2	.2	.2	.3	.3	.5	.8	1.6	2.3	4.1	6.2
Mar	.2	.2	.2	.2	.3	.4	.6	.9	1.3	3.2	4.1
Apr	.2	.2	.3	.3	.4	.4	.5	.7	.8	1.5	3.3
May	.2	.3	.3	.3	.4	.4	.5	.7	.8	1.1	1.6
Jun	.2	.3	.3	.3	.4	.4	.5	.6	.7	1.0	1.1
Jul	.1	.1	.2	.2	.3	.4	.5	.6	.7	1.1	1.5
Aug	.2	.2	.2	.2	.3	.4	.5	.7	.9	1.6	2.8
Sep	.2	.2	.2	.2	.3	.4	.5	.8	1.0	1.4	2.2
Oct	.1	.1	.2	.3	.3	.4	.6	.9	1.3	2.8	4.5
Nov	.2	.2	.2	.3	.4	.5	.7	1.2	1.5	3.5	5.7
Dec	.1	.2	.3	.3	.4	.5	.8	1.3	1.9	3.5	6.3
-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	8 hour				
Jan	.77	.56	.79	7.0	739	0 (0.00%)	0 (0.00%)				
Feb	.74	.55	.78	6.0	693	0 (0.00%)	0 (0.00%)				
Mar	.55	.45	.48	3.9	722	0 (0.00%)	0 (0.00%)				
Apr	.50	.47	.25	3.1	717	0 (0.00%)	0 (0.00%)				
May	.48	.46	.16	1.4	740	0 (0.00%)	0 (0.00%)				
Jun	.45	.44	.13	.9	717	0 (0.00%)	0 (0.00%)				
Jul	.41	.38	.17	1.4	741	0 (0.00%)	0 (0.00%)				
Aug	.45	.41	.25	2.6	737	0 (0.00%)	0 (0.00%)				
Sep	.46	.42	.25	2.0	715	0 (0.00%)	0 (0.00%)				
Oct	.55	.46	.46	4.4	734	0 (0.00%)	0 (0.00%)				
Nov	.64	.52	.54	5.5	718	0 (0.00%)	0 (0.00%)				
Dec	.74	.58	.68	6.2	620	0 (0.00%)	0 (0.00%)				
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.1	.2	.2	.3	.3	.4	.6	.9	1.3	2.8	7.2
-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	8 hour				
1996	.56	.47	.48	7.1	8593	0 (0.00%)	0 (0.00%)				
-----											
n/a - not applicable				* - no data							

n/a - not applicable

\* - no data

CO Summary Statistics for 1996  
Calgary East Monitoring Station  
Units are PPM (parts per million)

Ambient 1-hour average guideline = 13.0 PPM											
Ambient 8-hour average guideline = 5.0 PPM											
BY SEASON											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.2	.2	.3	.3	.5	.9	1.8	3.1	4.2	6.3	10.4
Spring	.2	.3	.3	.4	.4	.6	.8	1.2	1.7	3.8	7.4
Summer	.2	.2	.2	.3	.4	.5	.7	1.0	1.2	1.9	2.8
Autumn	.1	.2	.2	.3	.4	.6	1.0	1.7	2.5	4.6	8.0
BY SEASON											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	8 hour				
Winter	1.37	.96	1.32	10.2	2131	0(0.00%)	3(1.14%)				
Spring	.74	.62	.64	7.2	2099	0(0.00%)	0(0.00%)				
Summer	.56	.49	.34	2.6	2135	0(0.00%)	0(0.00%)				
Autumn	.85	.63	.86	7.9	2171	0(0.00%)	1(0.37%)				
BY MONTH											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.2	.2	.3	.3	.5	.9	1.7	2.7	3.7	6.2	10.4
Feb	.3	.3	.4	.4	.6	1.0	2.0	3.7	4.9	6.6	7.4
Mar	.2	.3	.4	.4	.5	.6	1.0	1.9	2.9	5.8	7.4
Apr	.3	.3	.3	.4	.4	.5	.7	1.1	1.5	3.0	3.5
May	.2	.3	.3	.4	.4	.5	.7	.9	1.1	1.6	2.4
Jun	.2	.2	.3	.3	.4	.5	.6	.9	1.2	1.8	2.1
Jul	.2	.2	.2	.2	.3	.4	.6	.9	1.0	1.7	2.1
Aug	.2	.2	.2	.3	.4	.5	.7	1.2	1.5	2.1	2.8
Sep	.1	.1	.2	.2	.3	.5	.7	1.1	1.4	2.3	3.6
Oct	.2	.2	.3	.3	.4	.6	1.0	1.9	2.6	4.7	7.0
Nov	.2	.2	.3	.3	.4	.6	1.2	2.4	3.7	5.3	8.0
Dec	.2	.2	.3	.3	.5	.8	1.7	2.8	3.8	6.2	7.3
BY MONTH											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	8 hour				
Jan	1.29	.91	1.25	10.2	737	0(0.00%)	2(2.20%)				
Feb	1.58	1.12	1.44	7.1	653	0(0.00%)	0(0.00%)				
Mar	.98	.75	.97	7.2	652	0(0.00%)	0(0.00%)				
Apr	.67	.59	.44	3.2	716	0(0.00%)	0(0.00%)				
May	.59	.55	.25	2.2	731	0(0.00%)	0(0.00%)				
Jun	.55	.50	.30	1.9	716	0(0.00%)	0(0.00%)				
Jul	.49	.43	.28	1.9	701	0(0.00%)	0(0.00%)				
Aug	.64	.55	.39	2.6	718	0(0.00%)	0(0.00%)				
Sep	.58	.47	.43	3.5	717	0(0.00%)	0(0.00%)				
Oct	.91	.69	.84	6.8	739	0(0.00%)	0(0.00%)				
Nov	1.07	.76	1.10	7.8	715	0(0.00%)	1(1.12%)				
Dec	1.26	.87	1.24	7.1	741	0(0.00%)	1(1.09%)				
BY YEAR											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.1	.2	.3	.3	.4	.6	.9	1.8	2.7	5.1	10.4
BY YEAR											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	8 hour				
1996	.88	.65	.92	10.3	8536	0(0.00%)	4(0.38%)				
n/a - not applicable * - no data											

n/a - not applicable

\* - no data



Wind Summary for 1996  
Calgary East Monitoring Station

\*\* calculation is for exceedances of the 8-hour guideline for CO \*\*

Joint Wind Direction and Speed Frequency Distribution (no. of hours)										
Dir	Wind Speed (km/h)								TOTAL	
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40		
N	0	0	0	0	0	0	0	0	0	
NNE	0	0	0	0	0	0	0	0	0	
NE	1	0	0	0	0	0	0	0	0	
ENE	0	0	0	0	0	0	0	0	0	
E	1	0	0	0	0	0	0	0	0	
ESE	3	0	0	0	0	0	0	0	0	
SE	0	0	0	0	0	0	0	0	0	
SSE	2	0	0	0	0	0	0	0	0	
S	4	0	0	0	0	0	0	0	0	
SSW	1	0	0	0	0	0	0	0	0	
SW	6	0	0	0	0	0	0	0	0	
WSW	6	0	0	0	0	0	0	0	0	
W	5	2	0	0	0	0	0	0	0	
WNW	0	0	0	0	0	0	0	0	0	
NW	0	0	0	0	0	0	0	0	0	
NNW	0	0	0	0	0	0	0	0	0	
TOTAL	29	2	0	0	0	0	0	0	0	31

CALM = 1 hours

MISSING DATA = 0 hours

Joint Wind Direction and Speed Frequency Distribution (percent)										
Dir	Wind Speed (km/h)								TOTAL	
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40		
N	.0	.0	.0	.0	.0	.0	.0	.0	.0	
NNE	.0	.0	.0	.0	.0	.0	.0	.0	.0	
NE	3.1	.0	.0	.0	.0	.0	.0	.0	.0	3.1
ENE	.0	.0	.0	.0	.0	.0	.0	.0	.0	
E	3.1	.0	.0	.0	.0	.0	.0	.0	.0	3.1
ESE	9.4	.0	.0	.0	.0	.0	.0	.0	.0	9.4
SE	.0	.0	.0	.0	.0	.0	.0	.0	.0	
SSE	6.3	.0	.0	.0	.0	.0	.0	.0	.0	6.3
S	12.5	.0	.0	.0	.0	.0	.0	.0	.0	12.5
SSW	3.1	.0	.0	.0	.0	.0	.0	.0	.0	3.1
SW	18.8	.0	.0	.0	.0	.0	.0	.0	.0	18.8
WSW	18.8	.0	.0	.0	.0	.0	.0	.0	.0	18.8
W	15.6	6.3	.0	.0	.0	.0	.0	.0	.0	21.9
WNW	.0	.0	.0	.0	.0	.0	.0	.0	.0	
NW	.0	.0	.0	.0	.0	.0	.0	.0	.0	
NNW	.0	.0	.0	.0	.0	.0	.0	.0	.0	
TOTAL	90.6	6.3	.0	.0	.0	.0	.0	.0	.0	96.9

CALM = 3.13%

MISSING DATA = .00%

CO Summary Statistics for 1996  
Fort Saskatchewan Monitoring Station  
Units are PPM (parts per million)

Ambient 1-hour average guideline = 13.0 PPM											
Ambient 8-hour average guideline = 5.0 PPM											
BY SEASON											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.0	.0	.3	.3	.3	.5	.9	1.6	2.0	3.0	4.6
Spring	.2	.2	.3	.3	.3	.4	.5	.6	.8	1.4	3.9
Summer	.2	.2	.3	.3	.3	.4	.4	.5	.6	.9	1.8
Autumn	.2	.2	.2	.3	.3	.4	.5	.9	1.2	1.8	3.5
BY SEASON											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	8 hour				
Winter	.74	.48	.60	4.6	2173	0(0.00%)	0(0.00%)				
Spring	.45	.42	.22	3.7	2195	0(0.00%)	0(0.00%)				
Summer	.38	.37	.13	1.6	2196	0(0.00%)	0(0.00%)				
Autumn	.49	.43	.34	3.3	2177	0(0.00%)	0(0.00%)				
BY MONTH											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.0	.0	.2	.3	.3	.5	.9	1.6	1.9	2.9	3.6
Feb	.2	.3	.3	.3	.4	.6	.9	1.5	1.9	2.9	4.4
Mar	.2	.2	.2	.3	.3	.4	.5	.8	1.0	1.6	3.9
Apr	.2	.2	.3	.3	.4	.4	.5	.7	.9	1.3	1.8
May	.2	.3	.3	.3	.3	.4	.4	.5	.5	.8	1.0
Jun	.2	.3	.3	.3	.3	.4	.4	.5	.6	1.0	1.1
Jul	.2	.3	.3	.3	.3	.4	.4	.5	.5	.7	.8
Aug	.2	.2	.2	.2	.3	.3	.4	.6	.7	.9	1.8
Sep	.2	.2	.3	.3	.3	.4	.4	.6	.7	1.0	1.6
Oct	.2	.2	.3	.3	.3	.4	.5	.8	1.1	1.6	2.8
Nov	.2	.2	.2	.2	.3	.4	.8	1.3	1.6	2.3	3.5
Dec	.2	.2	.3	.3	.3	.5	1.0	1.6	2.0	3.5	4.6
BY MONTH											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	8 hour				
Jan	.71	.44	.59	3.6	739	0(0.00%)	0(0.00%)				
Feb	.77	.63	.56	4.2	692	0(0.00%)	0(0.00%)				
Mar	.48	.42	.30	3.7	740	0(0.00%)	0(0.00%)				
Apr	.48	.45	.19	1.6	714	0(0.00%)	0(0.00%)				
May	.38	.37	.09	.8	741	0(0.00%)	0(0.00%)				
Jun	.39	.38	.12	.9	716	0(0.00%)	0(0.00%)				
Jul	.39	.38	.09	.6	740	0(0.00%)	0(0.00%)				
Aug	.37	.35	.16	1.6	740	0(0.00%)	0(0.00%)				
Sep	.40	.38	.14	1.4	720	0(0.00%)	0(0.00%)				
Oct	.49	.44	.28	2.6	741	0(0.00%)	0(0.00%)				
Nov	.59	.47	.47	3.3	716	0(0.00%)	0(0.00%)				
Dec	.74	.57	.64	4.4	742	0(0.00%)	0(0.00%)				
BY YEAR											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.0	.2	.3	.3	.3	.4	.5	.9	1.3	2.2	4.6
BY YEAR											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	8 hour				
1996	.52	.42	.39	4.6	8741	0(0.00%)	0(0.00%)				

n/a - not applicable

\* - no data

CO Summary Statistics for 1996  
Fort McMurray Monitoring Station  
Units are PPM (parts per million)

Ambient 1-hour average guideline = 13.0 PPM											
Ambient 8-hour average guideline = 5.0 PPM											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.1	.1	.2	.2	.2	.3	.5	.9	1.2	2.1	4.1
Spring	.1	.2	.2	.2	.2	.3	.3	.5	.6	1.0	1.9
Summer	.0	.0	.0	.0	.1	.2	.3	.4	.5	.7	2.1
Autumn	.0	.0	.0	.0	.1	.1	.3	.5	.7	1.3	2.7
-----BY SEASON-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	8 hour				
Winter	.47	.38	.39	4.0	2108	0(0.00%)	0(0.00%)				
Spring	.32	.29	.16	1.8	2208	0(0.00%)	0(0.00%)				
Summer	.20	.10	.15	2.1	2199	0(0.00%)	0(0.00%)				
Autumn	.20	.04	.26	2.7	2184	0(0.00%)	0(0.00%)				
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.2	.2	.2	.2	.2	.4	.6	.9	1.2	1.9	3.3
Feb	.2	.2	.2	.2	.3	.4	.6	1.0	1.6	2.8	4.1
Mar	.2	.2	.2	.2	.2	.3	.4	.6	.8	1.3	1.9
Apr	.2	.2	.2	.2	.2	.3	.3	.4	.5	.8	1.5
May	.1	.2	.2	.2	.2	.3	.3	.4	.5	.7	.8
Jun	.1	.1	.1	.1	.2	.2	.3	.4	.5	.7	1.1
Jul	.0	.0	.1	.1	.1	.2	.2	.3	.4	.7	2.1
Aug	.0	.0	.0	.0	.0	.1	.2	.4	.5	.7	.9
Sep	.0	.0	.0	.0	.0	.1	.2	.3	.4	.6	1.0
Oct	.0	.0	.0	.0	.0	.1	.3	.6	.8	1.6	2.0
Nov	.0	.0	.1	.1	.1	.1	.3	.5	.8	1.9	2.7
Dec	.1	.1	.2	.2	.2	.3	.5	.7	.9	1.5	1.7
-----BY MONTH-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	8 hour				
Jan	.48	.40	.36	3.1	669	0(0.00%)	0(0.00%)				
Feb	.54	.42	.50	3.9	695	0(0.00%)	0(0.00%)				
Mar	.35	.31	.21	1.7	744	0(0.00%)	0(0.00%)				
Apr	.31	.29	.13	1.3	720	0(0.00%)	0(0.00%)				
May	.29	.27	.10	.7	744	0(0.00%)	0(0.00%)				
Jun	.26	.24	.12	1.0	718	0(0.00%)	0(0.00%)				
Jul	.18	.10	.14	2.1	744	0(0.00%)	0(0.00%)				
Aug	.16	.03	.16	.9	737	0(0.00%)	0(0.00%)				
Sep	.13	.02	.14	1.0	720	0(0.00%)	0(0.00%)				
Oct	.22	.03	.29	2.0	744	0(0.00%)	0(0.00%)				
Nov	.26	.10	.31	2.7	720	0(0.00%)	0(0.00%)				
Dec	.39	.33	.26	1.6	744	0(0.00%)	0(0.00%)				
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.0	.0	.0	.1	.1	.2	.4	.6	.8	1.5	4.1
-----BY YEAR-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	8 hour				
1996	.30	.14	.28	4.1	8699	0(0.00%)	0(0.00%)				
-----											
n/a - not applicable				* - no data							

n/a - not applicable

\* - no data



Annual Average Concentration								
Year: 1996								
Pollutant: CO [ppm]								
Year	EDMU	ERMU	EIMU	CDMU	CRMU	CIMU	Fort Sask.	Fort McMurray
1976	1.57	1.86	0.64	2.11	1.25	1.78	*	*
1977	2.01	1.50	0.36	2.36	1.37	1.60	*	*
1978	2.05	1.34	0.33	2.77	1.17	1.51	*	*
1979	3.28	1.75	0.39	2.88	1.05	1.68	*	0.40a
1980	2.97	1.78	0.66	2.34	1.08	1.25	*	0.37
1981	2.18	1.62	1.01	2.33	1.04	1.96	b	0.48
1982	1.89	1.04	0.91	2.01	0.99	1.37	0.89	0.54
1983	1.78	1.22	0.85	2.10	1.09	1.33	0.71	b
1984	1.63	1.15	0.78	1.84	0.93	1.22	0.65	0.32a
1985	1.51	0.95	0.73	1.68	0.82	1.12	0.58	0.20
1986	1.55	1.27	0.57	1.90	0.89	1.34	0.79	0.34
1987	1.67	1.48	0.61	1.69	0.75	1.30	0.98	0.54
1988	1.50	1.27	0.56	1.68	0.72	1.39	0.74	0.54
1989	1.65	1.16	0.57	1.48	0.68	1.21	0.44a	0.46
1990	1.42	1.07	0.54	1.26	0.62	1.06	0.45	0.59
1991	1.30	1.13	0.54	1.35	0.74	1.13	0.44	0.51
1992	1.15	1.08	0.53	1.20	0.71	1.00	0.45	0.50
1993	1.12	1.05	0.52	1.12	0.64	0.99	0.39	0.35
1994	0.94	0.94	0.50	1.07	0.64	0.94	0.54	0.40
1995	0.90	0.88	0.48	1.02	0.62	0.97	0.51	0.38
1996	0.70	0.77	0.44	0.94	0.56	0.88	0.52	0.30

a 50% to 75% of data available

b less than 50% of data available

\* no data available



CO<sub>2</sub> Summary Statistics for 1996  
 Calgary Central Monitoring Station  
 Units are PPM (parts per million)

No guidelines											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	354.	366.	374.	381.	392.	405.	425.	453.	474.	517.	597.
Spring	359.	364.	369.	372.	378.	386.	394.	409.	427.	490.	583.
Summer	338.	347.	351.	355.	361.	369.	379.	400.	410.	441.	468.
Autumn	348.	352.	360.	364.	372.	388.	406.	426.	448.	499.	556.
-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Winter	412.0	410.9	30.9	243.	2118	n/a					
Spring	390.1	389.5	21.8	224.	2194	n/a					
Summer	373.4	373.0	18.6	130.	2192	n/a					
Autumn	392.9	391.9	28.8	208.	2055	n/a					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	365.	366.	373.	381.	393.	404.	430.	464.	482.	528.	597.
Feb	354.	359.	371.	376.	387.	400.	421.	447.	468.	509.	551.
Mar	363.	368.	373.	377.	384.	392.	404.	430.	459.	531.	583.
Apr	359.	363.	366.	371.	376.	382.	390.	401.	417.	452.	472.
May	364.	366.	369.	371.	377.	384.	392.	399.	406.	428.	454.
Jun	351.	354.	361.	363.	367.	372.	380.	395.	407.	431.	443.
Jul	338.	344.	350.	353.	358.	366.	376.	393.	407.	448.	468.
Aug	344.	346.	350.	354.	359.	368.	387.	406.	415.	445.	457.
Sep	348.	350.	354.	358.	365.	371.	382.	396.	404.	427.	452.
Oct	357.	359.	363.	366.	372.	381.	396.	417.	427.	462.	503.
Nov	381.	383.	389.	393.	399.	407.	424.	457.	481.	523.	556.
Dec	369.	372.	381.	386.	396.	409.	426.	446.	464.	519.	546.
-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Jan	414.9	413.5	34.5	232.	703	n/a					
Feb	406.7	405.6	30.2	197.	689	n/a					
Mar	399.8	398.8	29.9	220.	740	n/a					
Apr	385.2	384.9	15.7	113.	716	n/a					
May	385.1	384.9	11.8	90.	738	n/a					
Jun	375.9	375.7	14.7	92.	717	n/a					
Jul	369.9	369.5	18.7	130.	738	n/a					
Aug	374.5	373.9	21.2	113.	737	n/a					
Sep	374.5	374.2	15.4	104.	713	n/a					
Oct	386.9	386.4	21.0	146.	641	n/a					
Nov	417.0	416.1	28.9	175.	701	n/a					
Dec	414.3	413.5	27.0	177.	726	n/a					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	338.	350.	358.	363.	372.	387.	404.	427.	447.	493.	597.
-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
1996	391.9	390.9	28.9	259.	8559	n/a					

n/a - not applicable

\* - no data

CO<sub>2</sub> Summary Statistics for 1996  
Springbank Airport Monitoring Station  
Units are PPM (parts per million)

No guidelines											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	350.	352.	359.	363.	368.	377.	385.	395.	401.	412.	433.
Spring	351.	357.	365.	368.	373.	379.	386.	392.	397.	411.	433.
Summer	338.	343.	348.	350.	355.	363.	387.	417.	428.	454.	487.
Autumn	*	*	*	*	*	*	*	*	*	*	*
-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Winter	377.4	377.2	12.7	83.	1427	n/a					
Spring	379.8	379.7	10.2	82.	2184	n/a					
Summer	373.8	372.9	26.8	149.	691	n/a					
Autumn	*	*	*	*	*	*					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	359.	360.	363.	365.	370.	377.	386.	394.	400.	423.	433.
Feb	350.	351.	356.	359.	366.	374.	383.	395.	401.	405.	415.
Mar	362.	364.	367.	370.	375.	382.	388.	393.	396.	402.	407.
Apr	359.	362.	366.	368.	372.	378.	382.	389.	392.	401.	407.
May	351.	353.	360.	366.	373.	378.	386.	395.	406.	420.	433.
Jun	338.	343.	348.	350.	355.	363.	387.	417.	428.	454.	487.
Jul	*	*	*	*	*	*	*	*	*	*	*
Aug	*	*	*	*	*	*	*	*	*	*	*
Sep	*	*	*	*	*	*	*	*	*	*	*
Oct	*	*	*	*	*	*	*	*	*	*	*
Nov	*	*	*	*	*	*	*	*	*	*	*
Dec	*	*	*	*	*	*	*	*	*	*	*
-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Jan	379.2	379.0	12.0	74.	740	n/a					
Feb	375.4	375.2	13.1	65.	687	n/a					
Mar	381.6	381.5	8.8	45.	738	n/a					
Apr	377.9	377.9	8.1	48.	713	n/a					
May	379.8	379.6	12.8	82.	733	n/a					
Jun	373.8	372.9	26.8	149.	691	n/a					
Jul	*	*	*	*	*	*					
Aug	*	*	*	*	*	*					
Sep	*	*	*	*	*	*					
Oct	*	*	*	*	*	*					
Nov	*	*	*	*	*	*					
Dec	*	*	*	*	*	*					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	338.	349.	355.	360.	369.	377.	385.	395.	403.	428.	487.
-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
1996	378.0	377.7	15.1	149.	4302	n/a					
-----											
n/a - not applicable				* - no data							



-----		
Annual Average Concentration		
Year: 1996		
Pollutant: CO <sub>2</sub> [ppm]		
-----		
Year	CDMU	Springbank Airport
-----		
1976	*	*
1977	*	*
1978	*	*
1979	*	*
1980	*	*
1981	*	*
1982	*	*
1983	*	*
1984	*	*
1985	*	*
1986	*	*
1987	*	*
1988	*	*
1989	*	*
1990	*	*
1991	376	366
1992	390	371
1993	394	366
1994	393	373
1995	389	369
1996	392	b
-----		

a 50% to 75% of data available  
b less than 50% of data available  
\* no data available



COH Summary Statistics for 1996  
Edmonton Central Monitoring Station  
Units are COH units

Ambient guideline = 90% of values per month < 1.0 COH unit											
BY SEASON-											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.0	.0	.0	.0	.1	.2	.3	.5	.7	1.1	1.9
Spring	.0	.0	.0	.0	.1	.1	.2	.3	.4	.6	1.7
Summer	.0	.0	.0	.0	.1	.1	.2	.3	.4	.7	2.0
Autumn	.0	.0	.0	.0	.1	.1	.2	.4	.5	.8	1.7
BY SEASON-											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Values > 1.0 COH unit					
Winter	.23	.08	.22	1.9	2184	23(1.05%)					
Spring	.15	.05	.13	1.7	2206	2(0.09%)					
Summer	.16	.04	.16	2.0	2208	7(0.32%)					
Autumn	.17	.05	.16	1.7	2172	4(0.18%)					
BY MONTH-											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.0	.0	.0	.0	.1	.2	.3	.6	.7	1.1	1.2
Feb	.0	.0	.0	.0	.1	.2	.3	.5	.6	1.0	1.4
Mar	.0	.0	.0	.0	.1	.1	.2	.3	.4	.7	1.1
Apr	.0	.0	.0	.0	.1	.1	.2	.3	.4	.7	1.7
May	.0	.0	.0	.0	.1	.1	.2	.3	.4	.6	.8
Jun	.0	.0	.0	.0	.1	.1	.2	.3	.5	.6	1.4
Jul	.0	.0	.0	.0	.1	.1	.2	.3	.4	.7	.8
Aug	.0	.0	.0	.0	.0	.1	.2	.3	.5	1.0	2.0
Sep	.0	.0	.0	.0	.0	.1	.2	.3	.3	.5	.7
Oct	.0	.0	.0	.0	.1	.2	.2	.4	.5	.8	1.0
Nov	.0	.0	.0	.0	.1	.1	.3	.4	.6	.9	1.7
Dec	.0	.0	.0	.0	.1	.2	.3	.5	.7	1.1	1.9
BY MONTH-											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Values > 1.0 COH unit					
Jan	.23	.07	.23	1.2	744	8(1.08%)					
Feb	.23	.10	.20	1.4	696	6(0.86%)					
Mar	.16	.06	.14	1.1	744	1(0.13%)					
Apr	.14	.04	.14	1.7	718	1(0.14%)					
May	.16	.06	.13	.8	744	0(0.00%)					
Jun	.16	.05	.15	1.4	720	1(0.14%)					
Jul	.15	.05	.12	.8	744	0(0.00%)					
Aug	.17	.04	.19	2.0	744	6(0.81%)					
Sep	.12	.02	.11	.7	720	0(0.00%)					
Oct	.19	.06	.16	1.0	732	0(0.00%)					
Nov	.21	.09	.19	1.7	720	4(0.56%)					
Dec	.23	.08	.22	1.9	744	9(1.21%)					
BY YEAR-											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.0	.0	.0	.0	.1	.1	.2	.4	.5	.8	2.0
BY YEAR-											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Values > 1.0 COH unit					
1996	.18	.05	.17	2.0	8770	36(0.41%)					
n/a - not applicable * - no data											

n/a - not applicable

\* - no data

COH Summary Statistics for 1996  
Edmonton Northwest Monitoring Station  
Units are COH units

Ambient guideline = 90% of values per month < 1.0 COH unit											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.0	.0	.0	.0	.1	.2	.4	.7	1.0	1.5	3.1
Spring	.0	.0	.0	.0	.0	.1	.2	.3	.5	1.0	2.0
Summer	.0	.0	.0	.0	.0	.1	.2	.4	.5	.9	2.1
Autumn	.0	.0	.0	.0	.0	.1	.3	.6	.8	1.3	2.7
-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Values > 1.0 COH unit					
Winter	.30	.06	.33	3.1	2097	79(3.77%)					
Spring	.14	.01	.19	2.0	1928	16(0.83%)					
Summer	.14	.01	.20	2.1	1952	18(0.92%)					
Autumn	.23	.03	.29	2.7	2116	52(2.46%)					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.0	.0	.0	.0	.1	.2	.4	.8	1.1	1.6	3.1
Feb	.0	.0	.0	.0	.1	.3	.5	.8	1.0	1.3	1.6
Mar	.0	.0	.0	.0	.0	.1	.2	.4	.6	1.4	2.0
Apr	.0	.0	.0	.0	.0	.1	.2	.4	.5	1.0	1.4
May	.0	.0	.0	.0	.0	.1	.2	.2	.3	.6	1.1
Jun	.0	.0	.0	.0	.0	.1	.2	.4	.5	1.3	1.8
Jul	.0	.0	.0	.0	.0	.1	.1	.2	.4	.5	.7
Aug	.0	.0	.0	.0	.0	.1	.2	.4	.6	1.2	2.1
Sep	.0	.0	.0	.0	.0	.1	.2	.3	.5	.9	1.7
Oct	.0	.0	.0	.0	.1	.2	.4	.6	.8	1.5	2.3
Nov	.0	.0	.0	.0	.0	.1	.4	.7	.9	1.3	2.7
Dec	.0	.0	.0	.0	.0	.1	.4	.7	.8	1.1	1.5
-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Values > 1.0 COH unit					
Jan	.33	.06	.38	3.1	694	39(5.62%)					
Feb	.34	.11	.31	1.6	667	27(4.05%)					
Mar	.17	.02	.23	2.0	676	10(1.48%)					
Apr	.16	.01	.20	1.4	568	5(0.88%)					
May	.11	.01	.12	1.1	684	1(0.15%)					
Jun	.14	.01	.21	1.8	681	9(1.32%)					
Jul	.10	.02	.11	.7	527	0(0.00%)					
Aug	.17	.02	.24	2.1	744	9(1.21%)					
Sep	.13	.01	.18	1.7	700	2(0.29%)					
Oct	.28	.06	.31	2.3	696	26(3.74%)					
Nov	.27	.03	.33	2.7	720	24(3.33%)					
Dec	.25	.03	.27	1.5	736	13(1.77%)					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.0	.0	.0	.0	.0	.1	.3	.5	.7	1.3	3.1
-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Values > 1.0 COH unit					
1996	.21	.02	.27	3.1	8093	165(2.04%)					

n/a - not applicable

\* - no data



## Wind Summary for 1996

Edmonton Northwest Monitoring Station

\*\* calculation is for values greater than 1.0 COH unit \*\*

Joint Wind Direction and Speed Frequency Distribution (no. of hours)										
Dir	Wind Speed (km/h)								TOTAL	
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40		
N	2	1	0	0	0	0	0	0	0	3
NNE	4	0	0	0	0	0	0	0	0	4
NE	2	1	0	0	0	0	0	0	0	3
ENE	3	0	0	0	0	0	0	0	0	3
E	0	3	0	0	0	0	0	0	0	3
ESE	1	3	0	0	0	0	0	0	0	4
SE	6	2	0	0	0	0	0	0	0	8
SSE	8	2	0	0	0	0	0	0	0	10
S	5	13	0	0	0	0	0	0	0	18
SSW	11	23	0	0	0	0	0	0	0	34
SW	8	31	1	0	0	0	0	0	0	40
WSW	7	11	0	0	0	0	0	0	0	18
W	4	1	1	0	0	0	0	0	0	6
WNW	1	1	0	0	0	0	0	0	0	2
NW	6	1	0	0	0	0	0	0	0	7
NNW	2	0	0	0	0	0	0	0	0	2
TOTAL	70	93	2	0	0	0	0	0	0	165
CALM = 0 hours										
MISSING DATA = 0 hours										
Joint Wind Direction and Speed Frequency Distribution (percent)										
Dir	Wind Speed (km/h)								TOTAL	
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40		
N	1.2	.6	.0	.0	.0	.0	.0	.0	.0	1.8
NNE	2.4	.0	.0	.0	.0	.0	.0	.0	.0	2.4
NE	1.2	.6	.0	.0	.0	.0	.0	.0	.0	1.8
ENE	1.8	.0	.0	.0	.0	.0	.0	.0	.0	1.8
E	.0	1.8	.0	.0	.0	.0	.0	.0	.0	1.8
ESE	.6	1.8	.0	.0	.0	.0	.0	.0	.0	2.4
SE	3.6	1.2	.0	.0	.0	.0	.0	.0	.0	4.8
SSE	4.8	1.2	.0	.0	.0	.0	.0	.0	.0	6.1
S	3.0	7.9	.0	.0	.0	.0	.0	.0	.0	10.9
SSW	6.7	13.9	.0	.0	.0	.0	.0	.0	.0	20.6
SW	4.8	18.8	.6	.0	.0	.0	.0	.0	.0	24.2
WSW	4.2	6.7	.0	.0	.0	.0	.0	.0	.0	10.9
W	2.4	.6	.6	.0	.0	.0	.0	.0	.0	3.6
WNW	.6	.6	.0	.0	.0	.0	.0	.0	.0	1.2
NW	3.6	.6	.0	.0	.0	.0	.0	.0	.0	4.2
NNW	1.2	.0	.0	.0	.0	.0	.0	.0	.0	1.2
TOTAL	42.4	56.4	1.2	.0	.0	.0	.0	.0	.0	100.0
CALM = .00%										
MISSING DATA = .00%										

COH Summary Statistics for 1996  
Edmonton East Monitoring Station  
Units are COH units

Ambient guideline = 90% of values per month < 1.0 COH unit											
-BY SEASON-											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.0	.0	.0	.0	.1	.2	.4	.8	1.0	1.5	2.2
Spring	.0	.0	.0	.0	.0	.1	.1	.3	.4	.7	2.0
Summer	.0	.0	.0	.0	.0	.1	.2	.3	.5	1.0	2.2
Autumn	.0	.0	.0	.0	.0	.1	.2	.5	.8	1.4	2.2
-BY SEASON-											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Values > 1.0 COH unit					
Winter	.31	.07	.33	2.2	2163	95(4.39%)					
Spring	.12	.01	.16	2.0	2206	11(0.50%)					
Summer	.14	.01	.20	2.2	2180	12(0.55%)					
Autumn	.20	.02	.27	2.2	2091	47(2.25%)					
-BY MONTH-											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.0	.0	.0	.1	.1	.2	.5	.9	1.1	1.7	2.2
Feb	.0	.0	.0	.0	.1	.2	.4	.7	.9	1.2	1.7
Mar	.0	.0	.0	.0	.0	.1	.2	.3	.5	1.0	1.3
Apr	.0	.0	.0	.0	.0	.1	.1	.2	.3	.8	1.6
May	.0	.0	.0	.0	.0	.1	.1	.2	.3	.5	2.0
Jun	.0	.0	.0	.0	.0	.1	.2	.4	.6	1.0	1.1
Jul	.0	.0	.0	.0	.0	.1	.1	.2	.3	.6	.9
Aug	.0	.0	.0	.0	.0	.1	.2	.5	.7	1.3	2.2
Sep	.0	.0	.0	.0	.0	.1	.1	.2	.4	.6	.9
Oct	.0	.0	.0	.0	.1	.1	.3	.6	.8	1.6	2.2
Nov	.0	.0	.0	.0	.1	.1	.4	.7	1.0	1.5	1.8
Dec	.0	.0	.0	.0	.0	.1	.4	.8	1.0	1.5	1.9
-BY MONTH-											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Values > 1.0 COH unit					
Jan	.37	.14	.37	2.2	744	42(5.65%)					
Feb	.28	.07	.28	1.7	675	17(2.52%)					
Mar	.14	.02	.19	1.3	742	6(0.81%)					
Apr	.10	.01	.16	1.6	720	4(0.56%)					
May	.10	.02	.12	2.0	744	1(0.13%)					
Jun	.14	.01	.19	1.1	718	2(0.28%)					
Jul	.11	.02	.11	.9	724	0(0.00%)					
Aug	.18	.02	.25	2.2	738	10(1.36%)					
Sep	.10	.01	.13	.9	717	0(0.00%)					
Oct	.23	.05	.30	2.2	744	19(2.55%)					
Nov	.28	.04	.33	1.8	630	28(4.44%)					
Dec	.28	.03	.34	1.9	744	36(4.84%)					
-BY YEAR-											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.0	.0	.0	.0	.0	.1	.2	.5	.7	1.3	2.2
-BY YEAR-											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Values > 1.0 COH unit					
1996	.19	.02	.26	2.2	8640	165(1.91%)					
-BY YEAR-											
n/a - not applicable											

n/a - not applicable

\* - no data

Wind Summary for 1996  
Edmonton East Monitoring Station

\*\* calculation is for values greater than 1.0 COH unit \*\*

Joint Wind Direction and Speed Frequency Distribution (no. of hours)										
Wind Speed (km/h)										
Dir	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	>40	TOTAL
N	4	0	0	0	0	0	0	0	0	4
NNE	2	0	0	0	0	0	0	0	0	2
NE	1	0	0	0	0	0	0	0	0	1
ENE	1	0	1	0	0	0	0	0	0	2
E	0	0	0	0	0	0	0	0	0	0
ESE	1	0	0	0	0	0	0	0	0	1
SE	0	0	0	0	0	0	0	0	0	0
SSE	1	0	0	0	0	0	0	0	0	1
S	9	5	2	1	0	0	0	0	0	17
SSW	10	34	42	0	0	0	0	0	0	86
SW	7	10	9	1	0	0	0	0	0	27
WSW	2	4	0	0	0	0	0	0	0	6
W	3	1	0	0	0	0	0	0	0	4
WNW	2	1	0	0	0	0	0	1	0	4
NW	1	0	0	0	0	0	0	0	0	1
NNW	2	0	0	0	0	0	0	0	0	2
TOTAL	46	55	54	2	0	0	0	1	0	158

CALM = 6 hours

MISSING DATA = 1 hours

Joint Wind Direction and Speed Frequency Distribution (percent)										
Wind Speed (km/h)										
Dir	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	>40	TOTAL
N	2.4	.0	.0	.0	.0	.0	.0	.0	.0	2.4
NNE	1.2	.0	.0	.0	.0	.0	.0	.0	.0	1.2
NE	.6	.0	.0	.0	.0	.0	.0	.0	.0	.6
ENE	.6	.0	.6	.0	.0	.0	.0	.0	.0	1.2
E	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
ESE	.6	.0	.0	.0	.0	.0	.0	.0	.0	.6
SE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
SSE	.6	.0	.0	.0	.0	.0	.0	.0	.0	.6
S	5.5	3.0	1.2	.6	.0	.0	.0	.0	.0	10.3
SSW	6.1	20.6	25.5	.0	.0	.0	.0	.0	.0	52.1
SW	4.2	6.1	5.5	.6	.0	.0	.0	.0	.0	16.4
WSW	1.2	2.4	.0	.0	.0	.0	.0	.0	.0	3.6
W	1.8	.6	.0	.0	.0	.0	.0	.0	.0	2.4
WNW	1.2	.6	.0	.0	.0	.0	.0	.6	.0	2.4
NW	.6	.0	.0	.0	.0	.0	.0	.0	.0	.6
NNW	1.2	.0	.0	.0	.0	.0	.0	.0	.0	1.2
TOTAL	27.9	33.3	32.7	1.2	.0	.0	.0	.6	.0	95.8

CALM = 3.64%

MISSING DATA = .61%

COH Summary Statistics for 1996  
Calgary Central Monitoring Station  
Units are COH units

Ambient guideline = 90% of values per month < 1.0 COH unit											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.0	.0	.0	.1	.1	.2	.3	.5	.7	1.3	2.1
Spring	.0	.0	.0	.0	.1	.1	.2	.3	.5	.8	1.8
Summer	.0	.0	.0	.0	.1	.1	.2	.4	.4	.7	1.3
Autumn	.0	.0	.0	.0	.1	.2	.3	.4	.6	1.1	2.0
-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Values > 1.0 COH unit					
Winter	.25	.13	.24	2.1	2096	37(1.77%)					
Spring	.18	.10	.16	1.8	2181	10(0.46%)					
Summer	.18	.09	.14	1.3	2113	3(0.14%)					
Autumn	.22	.10	.20	2.0	2182	25(1.15%)					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.0	.0	.0	.1	.1	.2	.3	.6	.7	1.4	2.1
Feb	.0	.0	.0	.1	.1	.2	.3	.5	.7	1.2	1.3
Mar	.0	.0	.0	.1	.1	.2	.2	.4	.6	1.1	1.8
Apr	.0	.0	.0	.0	.1	.1	.2	.3	.4	.6	1.2
May	.0	.0	.0	.1	.1	.1	.2	.3	.4	.6	1.0
Jun	.0	.0	.0	.0	.1	.1	.2	.3	.4	.6	1.0
Jul	.0	.0	.0	.0	.1	.1	.2	.3	.4	.6	.7
Aug	.0	.0	.0	.1	.1	.2	.3	.4	.5	.8	1.3
Sep	.0	.0	.0	.0	.1	.1	.2	.4	.5	.6	.9
Oct	.0	.0	.0	.0	.1	.2	.3	.5	.6	1.3	2.0
Nov	.0	.0	.0	.1	.1	.2	.3	.5	.7	1.2	1.5
Dec	.0	.0	.0	.1	.1	.2	.3	.5	.7	1.3	1.9
-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Values > 1.0 COH unit					
Jan	.27	.14	.25	2.1	668	11(1.65%)					
Feb	.25	.13	.22	1.3	696	9(1.29%)					
Mar	.21	.11	.21	1.8	744	8(1.08%)					
Apr	.16	.08	.13	1.2	693	2(0.29%)					
May	.18	.10	.13	1.0	744	0(0.00%)					
Jun	.17	.09	.12	1.0	626	0(0.00%)					
Jul	.16	.08	.12	.7	744	0(0.00%)					
Aug	.21	.11	.17	1.3	743	3(0.40%)					
Sep	.17	.07	.14	.9	718	0(0.00%)					
Oct	.23	.10	.23	2.0	744	14(1.88%)					
Nov	.27	.16	.22	1.5	720	11(1.53%)					
Dec	.25	.12	.25	1.9	732	17(2.32%)					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.0	.0	.0	.1	.1	.2	.3	.4	.6	1.0	2.1
-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Values > 1.0 COH unit					
1996	.21	.10	.19	2.1	8572	75(0.87%)					

n/a - not applicable

\* - no data



COH Summary Statistics for 1996  
 Calgary Northwest Monitoring Station  
 Units are COH units

Ambient guideline = 90% of values per month < 1.0 COH unit											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.0	.0	.0	.0	.1	.1	.2	.4	.5	1.0	1.9
Spring	.0	.0	.0	.0	.0	.1	.1	.2	.2	.5	1.1
Summer	.0	.0	.0	.0	.0	.1	.1	.2	.3	.5	.8
Autumn	.0	.0	.0	.0	.0	.1	.2	.3	.3	.6	1.1
-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Values > 1.0 COH unit					
Winter	.17	.06	.19	1.9	2105	16 (0.76%)					
Spring	.10	.03	.10	1.1	2186	2 (0.09%)					
Summer	.11	.03	.10	.8	2166	0 (0.00%)					
Autumn	.12	.03	.13	1.1	2181	2 (0.09%)					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.0	.0	.0	.0	.1	.1	.3	.4	.6	1.1	1.7
Feb	.0	.0	.0	.0	.1	.1	.2	.4	.5	1.0	1.6
Mar	.0	.0	.0	.0	.1	.1	.1	.2	.3	.8	1.1
Apr	.0	.0	.0	.0	.0	.1	.1	.1	.2	.3	.9
May	.0	.0	.0	.0	.0	.1	.1	.2	.2	.3	.5
Jun	.0	.0	.0	.0	.0	.1	.1	.2	.2	.4	.8
Jul	.0	.0	.0	.0	.0	.1	.1	.2	.3	.5	.8
Aug	.0	.0	.0	.0	.1	.1	.2	.3	.3	.5	.8
Sep	.0	.0	.0	.0	.0	.1	.1	.2	.3	.5	.7
Oct	.0	.0	.0	.0	.0	.1	.2	.3	.4	.6	1.1
Nov	.0	.0	.0	.0	.1	.1	.2	.3	.4	.8	1.1
Dec	.0	.0	.0	.0	.1	.1	.2	.3	.4	.9	1.9
-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Values > 1.0 COH unit					
Jan	.20	.08	.22	1.7	682	7 (1.03%)					
Feb	.17	.05	.18	1.6	679	4 (0.59%)					
Mar	.13	.05	.13	1.1	740	2 (0.27%)					
Apr	.08	.03	.07	.9	706	0 (0.00%)					
May	.09	.03	.07	.5	740	0 (0.00%)					
Jun	.09	.03	.09	.8	705	0 (0.00%)					
Jul	.11	.03	.10	.8	717	0 (0.00%)					
Aug	.13	.04	.11	.8	744	0 (0.00%)					
Sep	.10	.02	.10	.7	720	0 (0.00%)					
Oct	.12	.02	.13	1.1	741	1 (0.13%)					
Nov	.14	.04	.14	1.1	720	1 (0.14%)					
Dec	.15	.06	.16	1.9	744	5 (0.67%)					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.0	.0	.0	.0	.0	.1	.2	.3	.3	.7	1.9
-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Values > 1.0 COH unit					
1996	.13	.03	.14	1.9	8638	20 (0.23%)					
-----											
n/a - not applicable				* - no data							

n/a - not applicable

\* - no data

Wind Summary for 1996  
 Calgary Northwest Monitoring Station

\*\* calculation is for values greater than 1.0 COH unit \*\*

Joint Wind Direction and Speed Frequency Distribution (no. of hours)										
Dir	Wind Speed (km/h)									TOTAL
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	>40	
N	0	0	0	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0	0	0	0
NE	1	0	0	0	0	0	0	0	0	1
ENE	2	0	0	0	0	0	0	0	0	2
E	2	0	0	0	0	0	0	0	0	2
ESE	2	0	0	0	0	0	0	0	0	2
SE	2	0	0	0	0	0	0	0	0	2
SSE	0	0	0	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0	0	0	0
SW	1	0	0	0	0	0	0	0	0	1
WSW	0	0	0	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0	0	0	0
WNW	2	0	0	0	0	0	0	0	0	2
NW	4	0	0	0	0	0	0	0	0	4
NNW	0	0	0	1	0	0	0	0	0	1
TOTAL	16	0	0	1	0	0	0	0	0	17

CALM = 3 hours

MISSING DATA = 0 hours

Joint Wind Direction and Speed Frequency Distribution (percent)										
Dir	Wind Speed (km/h)									TOTAL
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	>40	
N	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NNE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NE	5.0	.0	.0	.0	.0	.0	.0	.0	.0	5.0
ENE	10.0	.0	.0	.0	.0	.0	.0	.0	.0	10.0
E	10.0	.0	.0	.0	.0	.0	.0	.0	.0	10.0
ESE	10.0	.0	.0	.0	.0	.0	.0	.0	.0	10.0
SE	10.0	.0	.0	.0	.0	.0	.0	.0	.0	10.0
SSE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
S	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
SSW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
SW	5.0	.0	.0	.0	.0	.0	.0	.0	.0	5.0
WSW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
W	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
WNW	10.0	.0	.0	.0	.0	.0	.0	.0	.0	10.0
NW	20.0	.0	.0	.0	.0	.0	.0	.0	.0	20.0
NNW	.0	.0	.0	5.0	.0	.0	.0	.0	.0	5.0
TOTAL	80.0	.0	.0	5.0	.0	.0	.0	.0	.0	85.0

CALM = 15.00%

MISSING DATA = .00%

COH Summary Statistics for 1996  
Calgary East Monitoring Station  
Units are COH units

Ambient guideline = 90% of values per month < 1.0 COH unit											
--BY SEASON--											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.0	.0	.0	.1	.1	.3	.6	1.0	1.5	2.6	4.6
Spring	.0	.0	.0	.0	.1	.2	.2	.4	.6	1.2	2.2
Summer	.0	.0	.0	.0	.1	.2	.3	.5	.6	.9	1.6
Autumn	.0	.0	.0	.0	.1	.2	.3	.6	1.0	1.6	2.8
SEASON Arithmetic Geometric Arithmetic Range N Number of Values > 1.0 COH unit											
	Mean	Mean		Std Dev							
Winter	.45	.20		.51	4.6	2126	205(9.64%)				
Spring	.21	.09		.23	2.2	2185	31(1.42%)				
Summer	.21	.05		.21	1.6	2170	14(0.65%)				
Autumn	.27	.06		.32	2.8	2166	84(3.88%)				
--BY MONTH--											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.0	.0	.0	.1	.1	.3	.5	.8	1.2	2.8	4.6
Feb	.0	.0	.0	.1	.1	.3	.6	1.1	1.6	2.2	3.0
Mar	.0	.0	.0	.0	.1	.2	.3	.6	.9	1.6	2.2
Apr	.0	.0	.0	.0	.1	.1	.2	.4	.5	1.2	1.7
May	.0	.0	.0	.0	.1	.2	.2	.4	.5	.8	1.2
Jun	.0	.0	.0	.0	.1	.1	.3	.4	.6	1.1	1.4
Jul	.0	.0	.0	.0	.0	.1	.2	.3	.5	.8	.9
Aug	.0	.0	.0	.0	.1	.2	.4	.6	.8	1.1	1.6
Sep	.0	.0	.0	.0	.1	.2	.3	.5	.7	1.4	1.7
Oct	.0	.0	.0	.0	.1	.1	.3	.5	.8	1.7	2.8
Nov	.0	.0	.0	.1	.1	.2	.4	.9	1.1	1.8	2.5
Dec	.0	.0	.1	.1	.2	.3	.6	1.1	1.5	2.8	4.5
MONTH Arithmetic Geometric Arithmetic Range N Number of Values > 1.0 COH unit											
	Mean	Mean		Std Dev							
Jan	.42	.15		.50	4.6	744	49(6.59%)				
Feb	.45	.18		.48	3.0	638	74(11.60%)				
Mar	.26	.07		.30	2.2	744	22(2.96%)				
Apr	.19	.10		.20	1.7	703	8(1.14%)				
May	.19	.09		.15	1.2	738	1(0.14%)				
Jun	.19	.04		.20	1.4	720	7(0.97%)				
Jul	.17	.04		.16	.9	706	0(0.00%)				
Aug	.27	.08		.24	1.6	744	7(0.94%)				
Sep	.22	.05		.24	1.7	706	14(1.98%)				
Oct	.23	.04		.31	2.8	744	24(3.23%)				
Nov	.36	.16		.37	2.5	716	46(6.42%)				
Dec	.48	.23		.53	4.5	744	82(11.02%)				
--BY YEAR--											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.0	.0	.0	.0	.1	.2	.3	.6	.9	1.8	4.6
YEAR Arithmetic Geometric Arithmetic Range N Number of Values > 1.0 COH unit											
	Mean	Mean		Std Dev							
1996	.29	.08		.35	4.6	8647	334(3.86%)				

n/a - not applicable

\* - no data

Wind Summary for 1996  
Calgary East Monitoring Station

\*\* calculation is for values greater than 1.0 COH unit \*\*

-----  
Joint Wind Direction and Speed Frequency Distribution (no. of hours)

Dir	Wind Speed (km/h)									TOTAL
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	>40	
N	3	0	0	0	0	0	0	0	0	3
NNE	2	0	0	0	0	0	0	0	0	2
NE	3	0	0	0	0	0	0	0	0	3
ENE	4	0	0	0	0	0	0	0	0	4
E	14	2	0	0	0	0	0	0	0	16
ESE	36	2	0	0	0	0	0	0	0	38
SE	25	0	0	0	0	0	0	0	0	25
SSE	26	0	0	0	0	0	0	0	0	26
S	53	2	0	0	0	0	0	0	0	55
SSW	37	2	0	0	0	0	0	0	0	39
SW	38	1	0	0	0	0	0	0	0	39
WSW	28	2	0	0	0	0	0	0	0	30
W	16	4	0	0	0	0	0	0	0	20
WNW	5	0	0	0	0	0	0	0	0	5
NW	4	0	0	0	0	0	0	0	0	4
NNW	3	0	0	0	0	0	0	0	0	3
TOTAL	297	15	0	0	0	0	0	0	0	312

CALM = 22 hours

MISSING DATA = 0 hours

-----  
Joint Wind Direction and Speed Frequency Distribution (percent)

Dir	Wind Speed (km/h)									TOTAL
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	>40	
N	.9	.0	.0	.0	.0	.0	.0	.0	.0	.9
NNE	.6	.0	.0	.0	.0	.0	.0	.0	.0	.6
NE	.9	.0	.0	.0	.0	.0	.0	.0	.0	.9
ENE	1.2	.0	.0	.0	.0	.0	.0	.0	.0	1.2
E	4.2	.6	.0	.0	.0	.0	.0	.0	.0	4.8
ESE	10.8	.6	.0	.0	.0	.0	.0	.0	.0	11.4
SE	7.5	.0	.0	.0	.0	.0	.0	.0	.0	7.5
SSE	7.8	.0	.0	.0	.0	.0	.0	.0	.0	7.8
S	15.9	.6	.0	.0	.0	.0	.0	.0	.0	16.5
SSW	11.1	.6	.0	.0	.0	.0	.0	.0	.0	11.7
SW	11.4	.3	.0	.0	.0	.0	.0	.0	.0	11.7
WSW	8.4	.6	.0	.0	.0	.0	.0	.0	.0	9.0
W	4.8	1.2	.0	.0	.0	.0	.0	.0	.0	6.0
WNW	1.5	.0	.0	.0	.0	.0	.0	.0	.0	1.5
NW	1.2	.0	.0	.0	.0	.0	.0	.0	.0	1.2
NNW	.9	.0	.0	.0	.0	.0	.0	.0	.0	.9
TOTAL	88.9	4.5	.0	.0	.0	.0	.0	.0	.0	93.4

CALM = 6.59%

MISSING DATA = .00%



COH Summary Statistics for 1996  
Fort Saskatchewan Monitoring Station  
Units are COH units

Ambient guideline = 90% of values per month < 1.0 COH unit											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.0	.0	.0	.0	.0	.1	.3	.6	.8	1.1	1.6
Spring	.0	.0	.0	.0	.0	.1	.1	.2	.3	.5	.6
Summer	.0	.0	.0	.0	.0	.1	.1	.2	.3	.5	.9
Autumn	.0	.0	.0	.0	.0	.1	.2	.4	.5	.8	1.2
-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Values > 1.0 COH unit					
Winter	.23	.03	.26	1.6	2171	34 (1.57%)					
Spring	.08	.01	.09	.6	2189	0 (0.00%)					
Summer	.10	.02	.11	.9	2207	0 (0.00%)					
Autumn	.14	.01	.18	1.2	2178	5 (0.23%)					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.0	.0	.0	.0	.1	.2	.4	.7	.8	1.2	1.6
Feb	.0	.0	.0	.0	.1	.1	.3	.5	.6	.8	1.1
Mar	.0	.0	.0	.0	.0	.1	.1	.3	.4	.5	.6
Apr	.0	.0	.0	.0	.0	.0	.1	.2	.2	.4	.6
May	.0	.0	.0	.0	.0	.1	.1	.2	.2	.4	.5
Jun	.0	.0	.0	.0	.0	.0	.1	.2	.3	.5	.9
Jul	.0	.0	.0	.0	.0	.1	.1	.2	.2	.3	.6
Aug	.0	.0	.0	.0	.0	.1	.2	.3	.4	.6	.9
Sep	.0	.0	.0	.0	.0	.1	.1	.2	.2	.5	.8
Oct	.0	.0	.0	.0	.0	.1	.2	.3	.5	.8	1.1
Nov	.0	.0	.0	.0	.0	.1	.3	.6	.7	1.0	1.2
Dec	.0	.0	.0	.0	.0	.1	.3	.6	.9	1.2	1.6
-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Values > 1.0 COH unit					
Jan	.26	.04	.28	1.6	731	14 (1.92%)					
Feb	.20	.04	.20	1.1	696	2 (0.29%)					
Mar	.10	.01	.12	.6	742	0 (0.00%)					
Apr	.07	.01	.08	.6	718	0 (0.00%)					
May	.08	.02	.07	.5	729	0 (0.00%)					
Jun	.07	.00	.11	.9	719	0 (0.00%)					
Jul	.09	.04	.07	.6	744	0 (0.00%)					
Aug	.13	.04	.13	.9	744	0 (0.00%)					
Sep	.08	.01	.09	.8	714	0 (0.00%)					
Oct	.14	.02	.16	1.1	744	1 (0.13%)					
Nov	.19	.01	.23	1.2	720	4 (0.56%)					
Dec	.23	.02	.28	1.6	744	18 (2.42%)					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.0	.0	.0	.0	.0	.1	.2	.3	.5	.9	1.6
-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Values > 1.0 COH unit					
1996	.13	.01	.18	1.6	8745	39 (0.45%)					
-----											
n/a - not applicable				* - no data							

n/a - not applicable

\* - no data

Wind Summary for 1996  
Fort Saskatchewan Monitoring Station

\*\* calculation is for values greater than 1.0 COH unit \*\*

Joint Wind Direction and Speed Frequency Distribution (no. of hours)										
Dir	Wind Speed (km/h)									TOTAL
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	>40	
N	1	0	0	0	0	0	0	0	0	1
NNE	1	0	0	0	0	0	0	0	0	1
NE	0	0	0	0	0	0	0	0	0	0
ENE	4	0	0	0	0	0	0	0	0	4
E	1	0	0	0	0	0	0	0	0	1
ESE	1	0	0	0	0	0	0	0	0	1
SE	1	0	0	0	0	0	0	0	0	1
SSE	5	0	0	0	0	0	0	0	0	5
S	1	0	0	0	0	0	0	0	0	1
SSW	3	0	0	0	0	0	0	0	0	3
SW	6	2	0	0	0	0	0	0	0	8
WSW	3	0	0	0	0	0	0	0	0	3
W	7	0	0	0	0	0	0	0	0	7
WNW	0	0	0	0	0	0	0	0	0	0
NW	2	0	0	0	0	0	0	0	0	2
NNW	1	0	0	0	0	0	0	0	0	1
TOTAL	37	2	0	0	0	0	0	0	0	39
CALM = 0 hours										
MISSING DATA = 0 hours										

Joint Wind Direction and Speed Frequency Distribution (percent)										
Dir	Wind Speed (km/h)									TOTAL
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	>40	
N	2.6	.0	.0	.0	.0	.0	.0	.0	.0	2.6
NNE	2.6	.0	.0	.0	.0	.0	.0	.0	.0	2.6
NE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
ENE	10.3	.0	.0	.0	.0	.0	.0	.0	.0	10.3
E	2.6	.0	.0	.0	.0	.0	.0	.0	.0	2.6
ESE	2.6	.0	.0	.0	.0	.0	.0	.0	.0	2.6
SE	2.6	.0	.0	.0	.0	.0	.0	.0	.0	2.6
SSE	12.8	.0	.0	.0	.0	.0	.0	.0	.0	12.8
S	2.6	.0	.0	.0	.0	.0	.0	.0	.0	2.6
SSW	7.7	.0	.0	.0	.0	.0	.0	.0	.0	7.7
SW	15.4	5.1	.0	.0	.0	.0	.0	.0	.0	20.5
WSW	7.7	.0	.0	.0	.0	.0	.0	.0	.0	7.7
W	17.9	.0	.0	.0	.0	.0	.0	.0	.0	17.9
WNW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NW	5.1	.0	.0	.0	.0	.0	.0	.0	.0	5.1
NNW	2.6	.0	.0	.0	.0	.0	.0	.0	.0	2.6
TOTAL	94.9	5.1	.0	.0	.0	.0	.0	.0	.0	100.0
CALM = .00%										
MISSING DATA = .00%										

COH Summary Statistics for 1996  
Fort McMurray Monitoring Station  
Units are COH units

Ambient guideline = 90% of values per month < 1.0 COH unit											
BY SEASON-											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.0	.0	.0	.0	.0	.1	.1	.2	.3	.6	2.1
Spring	.0	.0	.0	.0	.0	.1	.1	.1	.2	.3	.7
Summer	.0	.0	.0	.0	.0	.0	.1	.1	.2	.3	.6
Autumn	.0	.0	.0	.0	.0	.0	.1	.1	.2	.4	1.1
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Values > 1.0 COH unit					
Winter	.11	.04	.12	2.1	1731	2 (0.12%)					
Spring	.06	.01	.06	.7	1570	0 (0.00%)					
Summer	.06	.01	.06	.6	2015	0 (0.00%)					
Autumn	.07	.01	.09	1.1	1012	1 (0.10%)					
BY MONTH-											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.0	.0	.0	.0	.1	.1	.1	.2	.3	.5	1.6
Feb	.0	.0	.0	.0	.0	.1	.1	.2	.4	.9	1.0
Mar	.0	.0	.0	.0	.0	.1	.1	.2	.3	.4	.7
Apr	.0	.0	.0	.0	.0	.0	.1	.1	.1	.2	.5
May	.0	.0	.0	.0	.0	.1	.1	.1	.1	.2	.3
Jun	.0	.0	.0	.0	.0	.0	.1	.1	.1	.2	.6
Jul	.0	.0	.0	.0	.0	.1	.1	.1	.1	.3	.4
Aug	.0	.0	.0	.0	.0	.0	.1	.1	.2	.3	.3
Sep	.0	.0	.0	.0	.0	.1	.1	.1	.1	.3	.5
Oct	*	*	*	*	*	*	*	*	*	*	*
Nov	.0	.0	.0	.0	.0	.0	.1	.2	.2	.5	1.1
Dec	.0	.0	.0	.0	.1	.1	.1	.2	.3	.4	2.1
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Values > 1.0 COH unit					
Jan	.12	.04	.12	1.6	611	1 (0.16%)					
Feb	.10	.01	.15	1.0	458	0 (0.00%)					
Mar	.10	.03	.09	.7	315	0 (0.00%)					
Apr	.05	.01	.05	.5	515	0 (0.00%)					
May	.06	.01	.05	.3	740	0 (0.00%)					
Jun	.05	.00	.06	.6	720	0 (0.00%)					
Jul	.06	.01	.05	.4	744	0 (0.00%)					
Aug	.06	.01	.06	.3	551	0 (0.00%)					
Sep	.06	.01	.06	.5	435	0 (0.00%)					
Oct	*	*	*	*	*	*					
Nov	.07	.01	.10	1.1	577	1 (0.17%)					
Dec	.12	.06	.11	2.1	662	1 (0.15%)					
BY YEAR-											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.0	.0	.0	.0	.0	.1	.1	.2	.2	.4	2.1
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Values > 1.0 COH unit					
1996	.07	.01	.09	2.1	6328	3 (0.05%)					
n/a - not applicable                      * - no data											

Wind Summary for 1996  
Fort McMurray Monitoring Station  
\*\* calculation is for values greater than 1.0 COH unit \*\*

Joint Wind Direction and Speed Frequency Distribution (no. of hours)										
Dir	Wind Speed (km/h)									TOTAL
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	>40	
N	0	0	0	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0	0	0	0
SE	2	0	0	0	0	0	0	0	0	2
SSE	0	1	0	0	0	0	0	0	0	1
S	0	0	0	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0	0	0	0
TOTAL	2	1	0	0	0	0	0	0	0	3
CALM = 0 hours										
MISSING DATA = 0 hours										
Joint Wind Direction and Speed Frequency Distribution (percent)										
Dir	Wind Speed (km/h)									TOTAL
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	>40	
N	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NNE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
ENE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
E	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
ESE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
SE	66.7	.0	.0	.0	.0	.0	.0	.0	.0	66.7
SSE	.0	33.3	.0	.0	.0	.0	.0	.0	.0	33.3
S	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
SSW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
SW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
WSW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
W	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
WNW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NNW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
TOTAL	66.7	33.3	.0	.0	.0	.0	.0	.0	.0	100.0
CALM = .00%										
MISSING DATA = .00%										



Annual Average Concentration									
Year: 1996									
Pollutant: COH [COH units]									
Year	EDMU	ERMU	EIMU	CDMU	CRMU	CIMU	Fort Sask.	Fort McMurray	
1976	0.19	0.11	0.04	0.16	0.10	0.21	*	*	
1977	0.20	0.12	0.09	0.19	0.11	0.23	*	*	
1978	0.20	0.15	0.13	0.24	0.10	0.22	*	*	
1979	0.27	0.23	0.20	0.25	0.10	0.26	*	0.04	
1980	0.30	0.28	0.23	0.30	0.11	0.29	*	0.08	
1981	0.37	0.29	0.22	0.41	0.14	0.33	b	0.10	
1982	0.30	0.25	0.09	0.40	0.16	0.33	0.15	0.06	
1983	0.25	0.24	0.17	0.33	0.11	0.31	0.12	0.03	
1984	0.23	0.22	0.24	0.23	0.12	0.29	0.13	0.03	
1985	0.23	0.23	0.22	0.27	0.10	0.23	0.13	0.06	
1986	0.26	0.24	0.18	0.30	0.11	0.23	0.13	0.05	
1987	0.23	0.27	0.17	0.32	0.11	0.28	0.14	0.07	
1988	0.19	0.23	0.21	0.26	0.08	0.30	0.10	0.07	
1989	0.21	0.23	0.24	0.25	0.08	0.29	0.10	0.07	
1990	0.20	0.23	0.22	0.22	0.07	0.24	0.08	0.09	
1991	0.22	0.24	0.23	0.22	0.05	0.23	0.10	0.05	
1992	0.21	0.23	0.23	0.18	0.06	0.23	0.09	0.07	
1993	0.25	0.25	0.22	0.18	0.07	0.24	0.12	0.08	
1994	0.25	0.29	0.23	0.20	0.10	0.27	0.13	0.11	
1995	0.19	0.25	0.22	0.23	0.14	0.26	0.14	0.09	
1996	0.18	0.21	0.19	0.21	0.13	0.29	0.13	0.07	

a 50% to 75% of data available

b less than 50% of data available

\* no data available



H<sub>2</sub>S Summary Statistics for 1996  
Edmonton East Monitoring Station  
Units are PPM (parts per million)

-----											
Ambient 1-hour average guideline = .010 PPM											
Ambient 24-hour average guideline = .003 PPM											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.000	.000	.000	.000	.000	.001	.001	.002	.002	.004	.014
Spring	.000	.000	.000	.000	.000	.000	.000	.001	.001	.003	.034
Summer	.000	.000	.000	.000	.000	.000	.001	.001	.002	.004	.013
Autumn	.000	.000	.000	.000	.000	.001	.001	.001	.002	.003	.007
-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
Winter	.001	.000	.001	.014	2145	4 (0.19%)	1 (1.15%)				
Spring	.000	.000	.001	.034	2189	2 (0.09%)	0 (0.00%)				
Summer	.001	.000	.001	.013	2190	2 (0.09%)	0 (0.00%)				
Autumn	.001	.000	.001	.007	2166	0 (0.00%)	0 (0.00%)				
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.000	.000	.000	.000	.000	.001	.001	.002	.003	.006	.014
Feb	.000	.000	.000	.000	.000	.001	.001	.002	.003	.004	.006
Mar	.000	.000	.000	.000	.000	.000	.000	.001	.001	.004	.034
Apr	.000	.000	.000	.000	.000	.000	.000	.001	.001	.002	.005
May	.000	.000	.000	.000	.000	.000	.000	.001	.001	.003	.007
Jun	.000	.000	.000	.000	.000	.000	.000	.001	.001	.003	.006
Jul	.000	.000	.000	.000	.000	.001	.001	.001	.001	.003	.006
Aug	.000	.000	.000	.000	.000	.000	.001	.002	.003	.007	.013
Sep	.000	.000	.000	.000	.000	.000	.001	.001	.002	.003	.007
Oct	.000	.000	.000	.000	.000	.001	.001	.001	.002	.003	.005
Nov	.000	.000	.000	.000	.000	.001	.001	.001	.002	.003	.005
Dec	.000	.000	.000	.000	.000	.001	.001	.002	.002	.003	.005
-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
Jan	.001	.000	.001	.014	737	4 (0.54%)	1 (3.33%)				
Feb	.001	.000	.001	.006	666	0 (0.00%)	0 (0.00%)				
Mar	.000	.000	.002	.034	739	2 (0.27%)	0 (0.00%)				
Apr	.000	.000	.000	.005	716	0 (0.00%)	0 (0.00%)				
May	.000	.000	.001	.007	734	0 (0.00%)	0 (0.00%)				
Jun	.000	.000	.001	.006	715	0 (0.00%)	0 (0.00%)				
Jul	.001	.000	.001	.006	739	0 (0.00%)	0 (0.00%)				
Aug	.001	.000	.001	.013	736	2 (0.27%)	0 (0.00%)				
Sep	.001	.000	.001	.007	713	0 (0.00%)	0 (0.00%)				
Oct	.001	.000	.001	.005	741	0 (0.00%)	0 (0.00%)				
Nov	.001	.000	.001	.005	712	0 (0.00%)	0 (0.00%)				
Dec	.001	.000	.001	.005	742	0 (0.00%)	0 (0.00%)				
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.000	.000	.000	.000	.000	.000	.001	.001	.002	.004	.034
-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
1996	.001	.000	.001	.034	8690	8 (0.09%)	1 (0.28%)				
-----											
n/a - not applicable				* - no data							

n/a - not applicable

\* - no data

Wind Summary for 1996  
Edmonton East Monitoring Station

\*\* calculation is for exceedances of the 1-hour guideline for H<sub>2</sub>S \*\*

Joint Wind Direction and Speed Frequency Distribution (no. of hours)									
Dir	Wind Speed (km/h)								TOTAL
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	>40
N	0	0	0	0	0	0	0	0	0
NNE	1	0	0	0	0	0	0	0	1
NE	1	0	0	0	0	0	0	0	1
ENE	0	0	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0	0	0
SE	0	1	0	0	0	0	0	0	1
SSE	1	2	0	0	0	0	0	0	3
S	1	0	0	0	0	0	0	0	1
SSW	0	0	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0	0	0
TOTAL	4	3	0	0	0	0	0	0	7

CALM = 1 hours

MISSING DATA = 0 hours

Joint Wind Direction and Speed Frequency Distribution (percent)									
Dir	Wind Speed (km/h)								TOTAL
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	>40
N	.0	.0	.0	.0	.0	.0	.0	.0	.0
NNE	12.5	.0	.0	.0	.0	.0	.0	.0	12.5
NE	12.5	.0	.0	.0	.0	.0	.0	.0	12.5
ENE	.0	.0	.0	.0	.0	.0	.0	.0	.0
E	.0	.0	.0	.0	.0	.0	.0	.0	.0
ESE	.0	.0	.0	.0	.0	.0	.0	.0	.0
SE	.0	12.5	.0	.0	.0	.0	.0	.0	12.5
SSE	12.5	25.0	.0	.0	.0	.0	.0	.0	37.5
S	12.5	.0	.0	.0	.0	.0	.0	.0	12.5
SSW	.0	.0	.0	.0	.0	.0	.0	.0	.0
SW	.0	.0	.0	.0	.0	.0	.0	.0	.0
WSW	.0	.0	.0	.0	.0	.0	.0	.0	.0
W	.0	.0	.0	.0	.0	.0	.0	.0	.0
WNW	.0	.0	.0	.0	.0	.0	.0	.0	.0
NW	.0	.0	.0	.0	.0	.0	.0	.0	.0
NNW	.0	.0	.0	.0	.0	.0	.0	.0	.0
TOTAL	50.0	37.5	.0	.0	.0	.0	.0	.0	87.5

CALM = 12.50%

MISSING DATA = .00%



Wind Summary for 1996  
Edmonton East Monitoring Station

\*\* calculation is for exceedances of the 24-hour guideline for H<sub>2</sub>S \*\*

Joint Wind Direction and Speed Frequency Distribution (no. of hours)										
Dir	Wind Speed (km/h)								TOTAL	
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40		
N	4	0	0	0	0	0	0	0	4	
NNE	1	1	0	0	0	0	0	0	2	
NE	0	0	0	0	0	0	0	0	0	
ENE	0	0	0	0	0	0	0	0	0	
E	0	0	0	0	0	0	0	0	0	
ESE	0	0	0	0	0	0	0	0	0	
SE	0	1	0	0	0	0	0	0	1	
SSE	4	0	0	0	0	0	0	0	4	
S	5	0	0	0	0	0	0	0	5	
SSW	0	0	0	0	0	0	0	0	0	
SW	0	0	0	0	0	0	0	0	0	
WSW	0	0	0	0	0	0	0	0	0	
W	0	0	0	0	0	0	0	0	0	
WNW	0	0	0	0	0	0	0	0	0	
NW	0	0	0	0	0	0	0	0	0	
NNW	3	0	0	0	0	0	0	0	3	
TOTAL	17	2	0	0	0	0	0	0	19	

CALM = 5 hours

MISSING DATA = 0 hours

Joint Wind Direction and Speed Frequency Distribution (percent)										
Dir	Wind Speed (km/h)								TOTAL	
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40		
N	16.7	.0	.0	.0	.0	.0	.0	.0	16.7	
NNE	4.2	4.2	.0	.0	.0	.0	.0	.0	8.3	
NE	.0	.0	.0	.0	.0	.0	.0	.0	.0	
ENE	.0	.0	.0	.0	.0	.0	.0	.0	.0	
E	.0	.0	.0	.0	.0	.0	.0	.0	.0	
ESE	.0	.0	.0	.0	.0	.0	.0	.0	.0	
SE	.0	4.2	.0	.0	.0	.0	.0	.0	4.2	
SSE	16.7	.0	.0	.0	.0	.0	.0	.0	16.7	
S	20.8	.0	.0	.0	.0	.0	.0	.0	20.8	
SSW	.0	.0	.0	.0	.0	.0	.0	.0	.0	
SW	.0	.0	.0	.0	.0	.0	.0	.0	.0	
WSW	.0	.0	.0	.0	.0	.0	.0	.0	.0	
W	.0	.0	.0	.0	.0	.0	.0	.0	.0	
WNW	.0	.0	.0	.0	.0	.0	.0	.0	.0	
NW	.0	.0	.0	.0	.0	.0	.0	.0	.0	
NNW	12.5	.0	.0	.0	.0	.0	.0	.0	12.5	
TOTAL	70.8	8.3	.0	.0	.0	.0	.0	.0	79.2	

CALM = 20.83%

MISSING DATA = .00%

H<sub>2</sub>S Summary Statistics for 1996  
 Calgary East Monitoring Station  
 Units are PPM (parts per million)

Ambient 1-hour average guideline = .010 PPM											
Ambient 24-hour average guideline = .003 PPM											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.000	.000	.000	.000	.001	.001	.002	.003	.004	.006	.010
Spring	.000	.000	.000	.000	.000	.001	.001	.001	.002	.003	.010
Summer	.000	.000	.000	.000	.000	.000	.001	.001	.002	.004	.010
Autumn	.000	.000	.000	.000	.000	.001	.001	.002	.003	.005	.008
-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
Winter	.001	.001	.001	.010	2163	0 (0.00%)	1 (1.10%)				
Spring	.001	.000	.001	.010	2183	0 (0.00%)	0 (0.00%)				
Summer	.000	.000	.001	.010	2149	0 (0.00%)	0 (0.00%)				
Autumn	.001	.000	.001	.008	2174	0 (0.00%)	0 (0.00%)				
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.000	.000	.000	.000	.001	.001	.002	.003	.003	.006	.010
Feb	.000	.000	.000	.000	.001	.001	.002	.003	.004	.007	.008
Mar	.000	.000	.000	.000	.001	.001	.001	.002	.002	.004	.010
Apr	.000	.000	.000	.000	.000	.001	.001	.001	.001	.002	.010
May	.000	.000	.000	.000	.000	.000	.001	.001	.002	.003	.005
Jun	.000	.000	.000	.000	.000	.000	.001	.001	.002	.004	.010
Jul	.000	.000	.000	.000	.000	.000	.001	.001	.002	.004	.005
Aug	.000	.000	.000	.000	.000	.000	.001	.001	.002	.006	.010
Sep	.000	.000	.000	.000	.000	.000	.001	.002	.003	.005	.007
Oct	.000	.000	.000	.000	.000	.000	.001	.002	.003	.006	.008
Nov	.000	.000	.000	.000	.000	.001	.002	.002	.003	.004	.008
Dec	.000	.000	.000	.000	.001	.001	.002	.003	.003	.005	.009
-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
Jan	.002	.001	.001	.010	733	0 (0.00%)	1 (3.23%)				
Feb	.001	.001	.001	.008	691	0 (0.00%)	0 (0.00%)				
Mar	.001	.001	.001	.010	738	0 (0.00%)	0 (0.00%)				
Apr	.001	.000	.001	.010	714	0 (0.00%)	0 (0.00%)				
May	.001	.000	.001	.005	731	0 (0.00%)	0 (0.00%)				
Jun	.000	.000	.001	.010	714	0 (0.00%)	0 (0.00%)				
Jul	.000	.000	.001	.005	696	0 (0.00%)	0 (0.00%)				
Aug	.001	.000	.001	.010	739	0 (0.00%)	0 (0.00%)				
Sep	.001	.000	.001	.007	714	0 (0.00%)	0 (0.00%)				
Oct	.001	.000	.001	.008	740	0 (0.00%)	0 (0.00%)				
Nov	.001	.000	.001	.008	720	0 (0.00%)	0 (0.00%)				
Dec	.001	.001	.001	.009	739	0 (0.00%)	0 (0.00%)				
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.000	.000	.000	.000	.000	.001	.001	.002	.003	.005	.010
-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
1996	.001	.000	.001	.010	8669	0 (0.00%)	1 (0.28%)				
-----											
n/a - not applicable				* - no data							

n/a - not applicable

\* - no data

Wind Summary for 1996  
Calgary East Monitoring Station

\*\* calculation is for exceedances of the 24-hour guideline for H<sub>2</sub>S \*\*

Joint Wind Direction and Speed Frequency Distribution (no. of hours)										
Dir	Wind Speed (km/h)									TOTAL
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	>40	
N	0	0	0	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0	0	0	0
ENE	1	0	0	0	0	0	0	0	0	1
E	0	0	0	0	0	0	0	0	0	0
ESE	2	0	0	0	0	0	0	0	0	2
SE	0	0	0	0	0	0	0	0	0	0
SSE	2	0	0	0	0	0	0	0	0	2
S	2	0	0	0	0	0	0	0	0	2
SSW	1	0	0	0	0	0	0	0	0	1
SW	6	0	0	0	0	0	0	0	0	6
WSW	4	1	1	0	0	0	0	0	0	6
W	3	0	0	0	0	0	0	0	0	3
WNW	0	0	0	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0	0	0	0
TOTAL	21	1	1	0	0	0	0	0	0	23
CALM = 1 hours										

MISSING DATA = 0 hours

Joint Wind Direction and Speed Frequency Distribution (percent)										
Dir	Wind Speed (km/h)									TOTAL
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	>40	
N	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NNE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
ENE	4.2	.0	.0	.0	.0	.0	.0	.0	.0	4.2
E	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
ESE	8.3	.0	.0	.0	.0	.0	.0	.0	.0	8.3
SE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
SSE	8.3	.0	.0	.0	.0	.0	.0	.0	.0	8.3
S	8.3	.0	.0	.0	.0	.0	.0	.0	.0	8.3
SSW	4.2	.0	.0	.0	.0	.0	.0	.0	.0	4.2
SW	25.0	.0	.0	.0	.0	.0	.0	.0	.0	25.0
WSW	16.7	4.2	4.2	.0	.0	.0	.0	.0	.0	25.0
W	12.5	.0	.0	.0	.0	.0	.0	.0	.0	12.5
WNW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NNW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
TOTAL	87.5	4.2	4.2	.0	.0	.0	.0	.0	.0	95.8
CALM = 4.17%										
MISSING DATA = .00%										

H<sub>2</sub>S Summary Statistics for 1996  
Fort Saskatchewan Monitoring Station  
Units are PPM (parts per million)

Ambient 1-hour average guideline = .010 PPM											
Ambient 24-hour average guideline = .003 PPM											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.000	.000	.000	.000	.000	.000	.001	.002	.003	.005	.008
Spring	.000	.000	.000	.000	.000	.001	.001	.001	.001	.001	.002
Summer	.000	.000	.000	.000	.000	.000	.001	.001	.001	.002	.004
Autumn	.000	.000	.000	.000	.000	.000	.001	.001	.002	.003	.005
-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
Winter	.001	.000	.001	.008	2169	0(0.00%)	1(1.10%)				
Spring	.001	.000	.000	.002	2193	0(0.00%)	0(0.00%)				
Summer	.000	.000	.000	.004	2195	0(0.00%)	0(0.00%)				
Autumn	.000	.000	.001	.005	2172	0(0.00%)	0(0.00%)				
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.000	.000	.000	.000	.000	.001	.001	.002	.002	.003	.004
Feb	.000	.000	.000	.000	.000	.001	.001	.001	.002	.002	.003
Mar	.000	.000	.000	.000	.000	.001	.001	.001	.001	.001	.002
Apr	.000	.000	.000	.000	.000	.000	.001	.001	.001	.001	.002
May	.000	.000	.000	.000	.000	.000	.000	.001	.001	.001	.001
Jun	.000	.000	.000	.000	.000	.000	.000	.001	.001	.002	.004
Jul	.000	.000	.000	.000	.000	.001	.001	.001	.001	.001	.002
Aug	.000	.000	.000	.000	.000	.000	.001	.001	.001	.002	.003
Sep	.000	.000	.000	.000	.000	.000	.000	.000	.001	.001	.003
Oct	.000	.000	.000	.000	.000	.000	.001	.001	.001	.002	.003
Nov	.000	.000	.000	.000	.000	.000	.001	.002	.002	.003	.005
Dec	.000	.000	.000	.000	.000	.000	.001	.003	.003	.006	.008
-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
Jan	.001	.000	.001	.004	736	0(0.00%)	0(0.00%)				
Feb	.001	.000	.001	.003	692	0(0.00%)	0(0.00%)				
Mar	.001	.000	.000	.002	739	0(0.00%)	0(0.00%)				
Apr	.000	.000	.000	.002	714	0(0.00%)	0(0.00%)				
May	.000	.000	.000	.001	740	0(0.00%)	0(0.00%)				
Jun	.000	.000	.000	.004	715	0(0.00%)	0(0.00%)				
Jul	.001	.000	.000	.002	740	0(0.00%)	0(0.00%)				
Aug	.000	.000	.000	.003	740	0(0.00%)	0(0.00%)				
Sep	.000	.000	.000	.003	715	0(0.00%)	0(0.00%)				
Oct	.000	.000	.000	.003	740	0(0.00%)	0(0.00%)				
Nov	.001	.000	.001	.005	717	0(0.00%)	0(0.00%)				
Dec	.001	.000	.001	.008	741	0(0.00%)	1(3.23%)				
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.000	.000	.000	.000	.000	.000	.001	.001	.002	.003	.008
-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
1996	.000	.000	.001	.008	8729	0(0.00%)	1(0.27%)				
-----											

n/a - not applicable

\* - no data



Wind Summary for 1996  
Fort Saskatchewan Monitoring Station

\*\* calculation is for exceedances of the 24-hour guideline for H<sub>2</sub>S \*\*

Joint Wind Direction and Speed Frequency Distribution (no. of hours)										
Dir	Wind Speed (km/h)									TOTAL
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	>40	
N	0	0	0	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0	0	0	0
SSW	1	1	0	0	0	0	0	0	0	2
SW	4	1	0	0	0	0	0	0	0	5
WSW	4	3	0	0	0	0	0	0	0	7
W	4	1	0	0	0	0	0	0	0	5
WNW	0	0	0	0	0	0	0	0	0	0
NW	0	2	0	0	0	0	0	0	0	2
NNW	0	3	0	0	0	0	0	0	0	3
TOTAL	13	11	0	0	0	0	0	0	0	24
CALM = 0 hours										
MISSING DATA = 0 hours										

Joint Wind Direction and Speed Frequency Distribution (percent)										
Dir	Wind Speed (km/h)									TOTAL
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	>40	
N	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NNE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
ENE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
E	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
ESE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
SE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
SSE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
S	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
SSW	4.2	4.2	.0	.0	.0	.0	.0	.0	.0	8.3
SW	16.7	4.2	.0	.0	.0	.0	.0	.0	.0	20.8
WSW	16.7	12.5	.0	.0	.0	.0	.0	.0	.0	29.2
W	16.7	4.2	.0	.0	.0	.0	.0	.0	.0	20.8
WNW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NW	.0	8.3	.0	.0	.0	.0	.0	.0	.0	8.3
NNW	.0	12.5	.0	.0	.0	.0	.0	.0	.0	12.5
TOTAL	54.2	45.8	.0	.0	.0	.0	.0	.0	.0	100.0
CALM = .00%										
MISSING DATA = .00%										

H<sub>2</sub>S Summary Statistics for 1996  
 Fort McMurray Monitoring Station  
 Units are PPM (parts per million)

Ambient 1-hour average guideline = .010 PPM											
Ambient 24-hour average guideline = .003 PPM											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.000	.000	.000	.000	.000	.001	.001	.001	.001	.002	.003
Spring	.000	.000	.000	.000	.000	.000	.001	.001	.001	.001	.002
Summer	.000	.000	.000	.000	.000	.000	.000	.000	.000	.001	.002
Autumn	.000	.000	.000	.000	.000	.000	.000	.001	.001	.001	.003
-----BY MONTH-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
Winter	.001	.000	.000	.003	2174	0(0.00%)	0(0.00%)				
Spring	.000	.000	.000	.002	2201	0(0.00%)	0(0.00%)				
Summer	.000	.000	.000	.002	2194	0(0.00%)	0(0.00%)				
Autumn	.000	.000	.000	.003	2176	0(0.00%)	0(0.00%)				
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.000	.000	.000	.000	.000	.000	.001	.001	.001	.001	.002
Feb	.000	.000	.000	.000	.000	.001	.001	.001	.001	.002	.003
Mar	.000	.000	.000	.000	.000	.000	.001	.001	.001	.001	.002
Apr	.000	.000	.000	.000	.000	.000	.000	.000	.000	.001	.001
May	.000	.000	.000	.000	.000	.000	.000	.000	.000	.001	.001
Jun	.000	.000	.000	.000	.000	.000	.000	.000	.000	.001	.001
Jul	.000	.000	.000	.000	.000	.000	.000	.000	.001	.002	.002
Aug	.000	.000	.000	.000	.000	.001	.001	.001	.001	.001	.001
Sep	.000	.000	.000	.000	.000	.000	.000	.000	.000	.001	.003
Oct	.000	.000	.000	.000	.000	.000	.001	.001	.001	.001	.002
Nov	.000	.000	.000	.000	.000	.000	.001	.001	.001	.001	.002
Dec	.000	.000	.000	.000	.001	.001	.001	.001	.001	.001	.002
-----BY MONTH-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
Jan	.000	.000	.001	.002	739	0(0.00%)	0(0.00%)				
Feb	.001	.000	.000	.003	693	0(0.00%)	0(0.00%)				
Mar	.000	.000	.000	.002	741	0(0.00%)	0(0.00%)				
Apr	.000	.000	.000	.001	718	0(0.00%)	0(0.00%)				
May	.000	.000	.000	.001	742	0(0.00%)	0(0.00%)				
Jun	.000	.000	.000	.001	718	0(0.00%)	0(0.00%)				
Jul	.000	.000	.000	.002	742	0(0.00%)	0(0.00%)				
Aug	.001	.000	.000	.001	734	0(0.00%)	0(0.00%)				
Sep	.000	.000	.000	.003	717	0(0.00%)	0(0.00%)				
Oct	.000	.000	.000	.002	741	0(0.00%)	0(0.00%)				
Nov	.000	.000	.000	.002	718	0(0.00%)	0(0.00%)				
Dec	.001	.001	.000	.002	742	0(0.00%)	0(0.00%)				
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.000	.000	.000	.000	.000	.000	.001	.001	.001	.001	.003
-----BY YEAR-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
1996	.000	.000	.000	.003	8745	0(0.00%)	0(0.00%)				
-----											
n/a - not applicable				* - no data							

n/a - not applicable

\* - no data

H<sub>2</sub>S Summary Statistics for 1996  
Fort Mackay Monitoring Station  
Units are PPM (parts per million)

Ambient 1-hour average guideline = .010 PPM											
Ambient 24-hour average guideline = .003 PPM											
BY SEASON											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.000	.000	.000	.000	.000	.000	.001	.001	.001	.003	.005
Spring	.000	.000	.000	.000	.000	.000	.000	.000	.000	.001	.017
Summer	.000	.000	.000	.000	.000	.000	.000	.000	.000	.002	.004
Autumn	.000	.000	.000	.000	.000	.000	.000	.001	.001	.002	.004
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
Winter	.001	.000	.001	.005	2132	0(0.00%)	0(0.00%)				
Spring	.000	.000	.000	.017	2201	1(0.05%)	0(0.00%)				
Summer	.000	.000	.000	.004	2130	0(0.00%)	0(0.00%)				
Autumn	.000	.000	.000	.004	2148	0(0.00%)	0(0.00%)				
BY MONTH											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.000	.000	.000	.000	.000	.001	.001	.001	.001	.002	.004
Feb	.000	.000	.000	.000	.000	.000	.001	.001	.002	.002	.004
Mar	.000	.000	.000	.000	.000	.000	.000	.000	.000	.001	.002
Apr	.000	.000	.000	.000	.000	.000	.000	.000	.000	.001	.002
May	.000	.000	.000	.000	.000	.000	.000	.000	.000	.001	.017
Jun	.000	.000	.000	.000	.000	.000	.000	.000	.000	.001	.001
Jul	.000	.000	.000	.000	.000	.000	.000	.000	.000	.002	.004
Aug	.000	.000	.000	.000	.000	.000	.000	.000	.001	.002	.003
Sep	.000	.000	.000	.000	.000	.000	.000	.000	.001	.002	.004
Oct	.000	.000	.000	.000	.000	.000	.000	.001	.001	.002	.003
Nov	.000	.000	.000	.000	.000	.000	.001	.001	.001	.001	.002
Dec	.000	.000	.000	.000	.000	.000	.001	.001	.001	.003	.005
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
Jan	.001	.000	.001	.004	700	0(0.00%)	0(0.00%)				
Feb	.000	.000	.001	.004	690	0(0.00%)	0(0.00%)				
Mar	.000	.000	.000	.002	742	0(0.00%)	0(0.00%)				
Apr	.000	.000	.000	.002	717	0(0.00%)	0(0.00%)				
May	.000	.000	.001	.017	742	1(0.13%)	0(0.00%)				
Jun	.000	.000	.000	.001	662	0(0.00%)	0(0.00%)				
Jul	.000	.000	.000	.004	742	0(0.00%)	0(0.00%)				
Aug	.000	.000	.000	.003	726	0(0.00%)	0(0.00%)				
Sep	.000	.000	.000	.004	717	0(0.00%)	0(0.00%)				
Oct	.000	.000	.000	.003	737	0(0.00%)	0(0.00%)				
Nov	.000	.000	.000	.002	694	0(0.00%)	0(0.00%)				
Dec	.000	.000	.001	.005	742	0(0.00%)	0(0.00%)				
BY YEAR											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.000	.000	.000	.000	.000	.000	.000	.001	.001	.002	.017
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
1996	.000	.000	.000	.017	8611	1(0.01%)	0(0.00%)				

n/a - not applicable

\* - no data

Wind Summary for 1996  
Fort MacKay Monitoring Station

\*\* calculation is for exceedances of the 1-hour guideline for H<sub>2</sub>S \*\*

Joint Wind Direction and Speed Frequency Distribution (no. of hours)										
Dir	Wind Speed (km/h)								TOTAL	
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	>40	
N	0	0	0	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0	0	0	0
SE	0	0	1	0	0	0	0	0	0	1
SSE	0	0	0	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	1	0	0	0	0	0	0	1
CALM = 0 hours										
MISSING DATA = 0 hours										

Joint Wind Direction and Speed Frequency Distribution (percent)										
Dir	Wind Speed (km/h)								TOTAL	
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	>40	
N	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NNE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
ENE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
E	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
ESE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
SE	.0	.0	100.0	.0	.0	.0	.0	.0	.0	100.0
SSE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
S	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
SSW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
SW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
WSW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
W	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
WNW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NNW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
TOTAL	.0	.0	100.0	.0	.0	.0	.0	.0	.0	100.0
CALM = .00%										
MISSING DATA = .00%										

Annual Average Concentration					
Year: 1996					
Pollutant: H <sub>2</sub> S [ppm]					
Year	EIMU	CIMU	Fort Sask.	Fort McMurray	Fort Mackay
1976	*	*	*	*	*
1977	*	*	*	*	*
1978	*	*	*	*	*
1979	*	*	*	*	*
1980	*	*	*	*	*
1981	*	*	b	*	*
1982	*	*	0.000	*	*
1983	*	*	0.001	b	b
1984	*	*	0.000	0.000a	0.000
1985	*	*	0.000	0.000	0.000
1986	*	0.001	0.001	0.000	0.000
1987	*	0.001	0.001	0.000	0.000
1988	*	0.001	0.001	0.000	0.000
1989	*	0.001	0.001a	0.000	0.001
1990	*	0.001	0.001	0.000	0.000
1991	0.001	0.001	0.001	0.000	0.000
1992	0.001	0.001	0.001	0.000	0.000
1993	0.001	0.001	0.000	0.000	0.000
1994	0.001	0.001	0.000	0.000	0.000
1995	0.001	0.001	0.000	0.000	0.000
1996	0.001	0.001	0.000	0.000	0.000

a 50% to 75% of data available  
b less than 50% of data available  
\* no data available





NO<sub>2</sub> Summary Statistics for 1996  
Edmonton Central Monitoring Station  
Units are PPM (parts per million)

-----											
Ambient 1-hour average guideline = .210 PPM											
Ambient 24-hour average guideline = .110 PPM											
Ambient annual average guideline = .030 PPM											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.006	.011	.015	.020	.027	.035	.043	.050	.054	.065	.106
Spring	.004	.007	.009	.012	.017	.023	.032	.042	.050	.064	.076
Summer	.000	.003	.005	.006	.008	.012	.017	.022	.025	.034	.050
Autumn	.002	.005	.008	.011	.016	.023	.031	.040	.044	.052	.085
-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
Winter	.035	.033	.012	.100	2167	0 (0.00%)	0 (0.00%)				
Spring	.025	.023	.012	.072	2188	0 (0.00%)	0 (0.00%)				
Summer	.013	.011	.007	.050	2094	0 (0.00%)	0 (0.00%)				
Autumn	.024	.021	.011	.083	2086	0 (0.00%)	0 (0.00%)				
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.006	.009	.014	.018	.025	.033	.041	.049	.055	.077	.106
Feb	.010	.012	.015	.019	.026	.035	.044	.050	.053	.062	.071
Mar	.007	.010	.013	.016	.022	.029	.040	.053	.060	.072	.076
Apr	.007	.008	.011	.013	.017	.024	.033	.040	.046	.055	.060
May	.004	.005	.008	.009	.013	.019	.023	.028	.032	.043	.050
Jun	.002	.003	.004	.005	.008	.011	.014	.019	.021	.027	.031
Jul	.000	.003	.005	.006	.009	.014	.018	.023	.026	.033	.039
Aug	.002	.004	.005	.006	.009	.013	.018	.025	.030	.040	.050
Sep	.002	.003	.006	.007	.012	.016	.021	.025	.028	.034	.039
Oct	.005	.008	.010	.012	.016	.022	.029	.035	.038	.043	.053
Nov	.011	.014	.018	.021	.026	.031	.040	.046	.049	.060	.085
Dec	.009	.011	.018	.023	.030	.038	.045	.050	.054	.064	.072
-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
Jan	.034	.031	.013	.100	740	0 (0.00%)	0 (0.00%)				
Feb	.035	.033	.012	.061	688	0 (0.00%)	0 (0.00%)				
Mar	.032	.029	.014	.069	738	0 (0.00%)	0 (0.00%)				
Apr	.025	.023	.011	.053	712	0 (0.00%)	0 (0.00%)				
May	.019	.017	.008	.046	738	0 (0.00%)	0 (0.00%)				
Jun	.011	.010	.005	.029	720	0 (0.00%)	0 (0.00%)				
Jul	.014	.012	.007	.039	715	0 (0.00%)	0 (0.00%)				
Aug	.014	.012	.008	.048	659	0 (0.00%)	0 (0.00%)				
Sep	.016	.015	.007	.037	713	0 (0.00%)	0 (0.00%)				
Oct	.023	.021	.009	.048	653	0 (0.00%)	0 (0.00%)				
Nov	.033	.031	.010	.074	720	0 (0.00%)	0 (0.00%)				
Dec	.037	.035	.011	.063	739	0 (0.00%)	0 (0.00%)				
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.000	.004	.007	.009	.014	.022	.033	.044	.049	.061	.106
-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
1996	.025	.021	.013	.106	8535	0 (0.00%)	0 (0.00%)				
-----											
n/a - not applicable											

n/a - not applicable

\* - no data

NO<sub>2</sub> Summary Statistics for 1996  
Edmonton Northwest Monitoring Station  
Units are PPM (parts per million)

-----											
Ambient 1-hour average guideline = .210 PPM											
Ambient 24-hour average guideline = .110 PPM											
Ambient annual average guideline = .030 PPM											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.002	.004	.006	.008	.015	.023	.037	.053	.062	.078	.103
Spring	.003	.005	.007	.008	.012	.020	.039	.059	.073	.096	.122
Summer	.000	.002	.005	.006	.009	.016	.027	.036	.044	.068	.162
Autumn	.002	.003	.005	.007	.011	.019	.030	.043	.051	.066	.094
-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
Winter	.027	.022	.017	.101	2154	0 (0.00%)	0 (0.00%)				
Spring	.028	.021	.021	.119	2196	0 (0.00%)	0 (0.00%)				
Summer	.020	.015	.015	.162	2183	0 (0.00%)	0 (0.00%)				
Autumn	.022	.017	.015	.092	2155	0 (0.00%)	0 (0.00%)				
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.003	.004	.005	.006	.009	.018	.024	.029	.034	.047	.060
Feb	.002	.004	.008	.011	.018	.025	.043	.065	.074	.088	.103
Mar	.003	.005	.007	.009	.013	.024	.052	.073	.082	.112	.122
Apr	.004	.005	.007	.009	.013	.020	.040	.059	.069	.088	.106
May	.003	.005	.006	.007	.010	.016	.027	.042	.050	.074	.108
Jun	.000	.001	.005	.008	.012	.022	.032	.038	.046	.060	.067
Jul	.002	.003	.005	.006	.009	.013	.021	.031	.036	.045	.060
Aug	.002	.002	.005	.006	.009	.015	.023	.038	.055	.110	.162
Sep	.002	.002	.004	.005	.007	.011	.017	.023	.029	.037	.046
Oct	.002	.003	.005	.007	.012	.020	.029	.038	.043	.060	.077
Nov	.005	.006	.010	.012	.018	.029	.043	.053	.059	.076	.094
Dec	.004	.005	.009	.012	.020	.034	.045	.054	.059	.074	.086
-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
Jan	.018	.015	.010	.057	744	0 (0.00%)	0 (0.00%)				
Feb	.032	.026	.021	.101	666	0 (0.00%)	0 (0.00%)				
Mar	.034	.025	.026	.119	740	0 (0.00%)	0 (0.00%)				
Apr	.028	.022	.020	.102	716	0 (0.00%)	0 (0.00%)				
May	.021	.017	.015	.105	740	0 (0.00%)	0 (0.00%)				
Jun	.023	.018	.013	.067	717	0 (0.00%)	0 (0.00%)				
Jul	.016	.013	.010	.058	722	0 (0.00%)	0 (0.00%)				
Aug	.020	.015	.019	.160	744	0 (0.00%)	0 (0.00%)				
Sep	.013	.011	.008	.044	715	0 (0.00%)	0 (0.00%)				
Oct	.022	.018	.012	.075	725	0 (0.00%)	0 (0.00%)				
Nov	.031	.027	.016	.089	715	0 (0.00%)	0 (0.00%)				
Dec	.033	.029	.016	.082	744	0 (0.00%)	0 (0.00%)				
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.000	.003	.005	.007	.011	.020	.032	.048	.059	.081	.162
-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
1996	.024	.019	.018	.162	8688	0 (0.00%)	0 (0.00%)				
-----											
n/a - not applicable                      * - no data											

NO<sub>2</sub> Summary Statistics for 1996  
Edmonton East Monitoring Station  
Units are PPM (parts per million)

-----											
Ambient 1-hour average guideline = .210 PPM											
Ambient 24-hour average guideline = .110 PPM											
Ambient annual average guideline = .030 PPM											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.003	.005	.007	.009	.015	.028	.038	.047	.053	.060	.085
Spring	.002	.003	.004	.004	.007	.013	.022	.033	.042	.056	.069
Summer	.001	.002	.002	.003	.005	.008	.014	.021	.026	.038	.063
Autumn	.002	.003	.004	.005	.007	.014	.024	.036	.041	.050	.077
-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
Winter	.028	.023	.014	.082	2137	0 (0.00%)	0 (0.00%)				
Spring	.016	.013	.012	.067	1967	0 (0.00%)	0 (0.00%)				
Summer	.010	.008	.008	.062	2179	0 (0.00%)	0 (0.00%)				
Autumn	.017	.013	.012	.075	2141	0 (0.00%)	0 (0.00%)				
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.003	.005	.008	.012	.019	.031	.040	.048	.054	.065	.085
Feb	.003	.004	.005	.009	.015	.027	.039	.051	.056	.061	.067
Mar	.002	.003	.004	.005	.010	.017	.028	.042	.050	.061	.069
Apr	.002	.003	.003	.004	.006	.013	.021	.029	.037	.053	.063
May	.002	.003	.004	.004	.006	.010	.017	.025	.030	.038	.049
Jun	.001	.002	.003	.003	.004	.007	.014	.025	.032	.041	.048
Jul	.001	.002	.002	.003	.005	.008	.012	.017	.020	.023	.028
Aug	.001	.002	.003	.003	.005	.010	.015	.024	.028	.039	.063
Sep	.002	.002	.003	.004	.005	.008	.013	.019	.022	.027	.034
Oct	.003	.003	.004	.006	.010	.016	.024	.033	.038	.044	.052
Nov	.003	.004	.005	.006	.011	.020	.036	.043	.047	.061	.077
Dec	.003	.004	.006	.008	.012	.024	.036	.043	.046	.055	.059
-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
Jan	.030	.027	.014	.082	737	0 (0.00%)	0 (0.00%)				
Feb	.028	.023	.016	.064	660	0 (0.00%)	0 (0.00%)				
Mar	.021	.016	.014	.067	730	0 (0.00%)	0 (0.00%)				
Apr	.015	.011	.011	.061	617	0 (0.00%)	0 (0.00%)				
May	.013	.010	.008	.047	620	0 (0.00%)	0 (0.00%)				
Jun	.011	.008	.009	.047	708	0 (0.00%)	0 (0.00%)				
Jul	.009	.007	.005	.027	738	0 (0.00%)	0 (0.00%)				
Aug	.012	.009	.008	.062	733	0 (0.00%)	0 (0.00%)				
Sep	.010	.008	.006	.032	713	0 (0.00%)	0 (0.00%)				
Oct	.018	.015	.010	.049	716	0 (0.00%)	0 (0.00%)				
Nov	.023	.019	.014	.074	712	0 (0.00%)	0 (0.00%)				
Dec	.025	.021	.013	.056	740	0 (0.00%)	0 (0.00%)				
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.001	.002	.003	.004	.007	.014	.026	.038	.044	.057	.085
-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
1996	.018	.013	.013	.084	8424	0 (0.00%)	0 (0.00%)				
-----											
n/a - not applicable                      * - no data											

NO<sub>2</sub> Summary Statistics for 1996  
 Calgary Central Monitoring Station  
 Units are PPM (parts per million)

-----											
Ambient 1-hour average guideline = .210 PPM											
Ambient 24-hour average guideline = .110 PPM											
Ambient annual average guideline = .030 PPM											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.008	.012	.019	.022	.029	.037	.045	.053	.060	.082	.106
Spring	.006	.009	.013	.015	.021	.027	.036	.043	.049	.073	.152
Summer	.003	.006	.009	.011	.015	.020	.027	.033	.038	.048	.080
Autumn	.004	.008	.012	.015	.020	.026	.034	.041	.046	.060	.077
-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
Winter	.038	.035	.013	.098	2120	0(0.00%)	0(0.00%)				
Spring	.029	.027	.013	.146	2192	0(0.00%)	0(0.00%)				
Summer	.021	.020	.009	.077	2191	0(0.00%)	0(0.00%)				
Autumn	.027	.025	.011	.073	2168	0(0.00%)	0(0.00%)				
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.008	.010	.018	.020	.026	.037	.045	.055	.061	.087	.103
Feb	.008	.011	.019	.022	.029	.038	.047	.056	.060	.081	.094
Mar	.010	.012	.016	.019	.025	.034	.041	.052	.061	.087	.152
Apr	.006	.008	.012	.015	.020	.026	.033	.041	.045	.053	.061
May	.006	.009	.012	.014	.019	.025	.031	.037	.040	.044	.051
Jun	.005	.007	.010	.012	.015	.020	.026	.031	.034	.047	.080
Jul	.004	.007	.009	.010	.014	.019	.024	.030	.034	.042	.047
Aug	.003	.006	.009	.011	.016	.022	.029	.038	.042	.053	.074
Sep	.004	.006	.010	.012	.016	.021	.027	.033	.036	.043	.052
Oct	.006	.007	.012	.014	.021	.027	.034	.040	.043	.053	.069
Nov	.008	.010	.016	.018	.024	.032	.040	.048	.054	.069	.077
Dec	.009	.012	.020	.024	.031	.037	.042	.047	.055	.077	.106
-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
Jan	.037	.035	.015	.095	702	0(0.00%)	0(0.00%)				
Feb	.039	.036	.014	.086	691	0(0.00%)	0(0.00%)				
Mar	.035	.032	.016	.142	738	0(0.00%)	0(0.00%)				
Apr	.027	.025	.010	.055	715	0(0.00%)	0(0.00%)				
May	.025	.024	.009	.045	739	0(0.00%)	0(0.00%)				
Jun	.021	.020	.008	.075	716	0(0.00%)	0(0.00%)				
Jul	.020	.018	.008	.043	738	0(0.00%)	0(0.00%)				
Aug	.023	.021	.010	.071	737	0(0.00%)	0(0.00%)				
Sep	.022	.021	.008	.048	716	0(0.00%)	0(0.00%)				
Oct	.027	.025	.010	.063	739	0(0.00%)	0(0.00%)				
Nov	.033	.031	.012	.069	713	0(0.00%)	0(0.00%)				
Dec	.037	.035	.011	.097	727	0(0.00%)	0(0.00%)				
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.003	.008	.011	.014	.020	.027	.036	.045	.051	.069	.152
-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
1996	.029	.026	.013	.149	8671	0(0.00%)	0(0.00%)				
-----											

n/a - not applicable

\* - no data



NO<sub>2</sub> Summary Statistics for 1996  
 Calgary Northwest Monitoring Station  
 Units are PPM (parts per million)

-----											
Ambient 1-hour average guideline = .210 PPM											
Ambient 24-hour average guideline = .110 PPM											
Ambient annual average guideline = .030 PPM											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.001	.003	.007	.010	.016	.025	.034	.043	.048	.064	.089
Spring	.001	.003	.004	.005	.008	.012	.019	.028	.037	.052	.089
Summer	.001	.002	.003	.004	.006	.009	.014	.020	.025	.037	.060
Autumn	.002	.003	.004	.006	.010	.015	.024	.033	.037	.043	.055
-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
Winter	.026	.022	.013	.088	2170	0(0.00%)	0(0.00%)				
Spring	.015	.012	.011	.088	2115	0(0.00%)	0(0.00%)				
Summer	.011	.009	.007	.059	2196	0(0.00%)	0(0.00%)				
Autumn	.018	.014	.010	.053	2167	0(0.00%)	0(0.00%)				
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.001	.003	.007	.010	.014	.023	.033	.044	.051	.069	.082
Feb	.002	.003	.006	.008	.014	.023	.035	.045	.049	.065	.078
Mar	.004	.005	.006	.008	.011	.018	.027	.040	.047	.075	.089
Apr	.002	.003	.004	.004	.006	.011	.017	.023	.031	.045	.057
May	.001	.002	.003	.005	.007	.010	.016	.020	.024	.033	.040
Jun	.001	.002	.003	.003	.005	.008	.014	.019	.023	.033	.045
Jul	.002	.002	.003	.003	.005	.009	.013	.019	.022	.032	.048
Aug	.002	.002	.003	.005	.007	.011	.017	.023	.031	.046	.060
Sep	.002	.002	.003	.005	.007	.012	.018	.024	.028	.038	.043
Oct	.002	.003	.004	.005	.009	.015	.023	.031	.034	.041	.048
Nov	.004	.005	.008	.009	.014	.021	.032	.038	.040	.048	.055
Dec	.003	.004	.008	.012	.020	.027	.034	.040	.044	.060	.089
-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
Jan	.025	.021	.014	.081	740	0(0.00%)	0(0.00%)				
Feb	.025	.021	.014	.076	691	0(0.00%)	0(0.00%)				
Mar	.021	.017	.014	.085	662	0(0.00%)	0(0.00%)				
Apr	.013	.010	.009	.055	715	0(0.00%)	0(0.00%)				
May	.012	.010	.007	.039	738	0(0.00%)	0(0.00%)				
Jun	.010	.008	.007	.044	716	0(0.00%)	0(0.00%)				
Jul	.010	.008	.007	.046	740	0(0.00%)	0(0.00%)				
Aug	.013	.011	.009	.058	740	0(0.00%)	0(0.00%)				
Sep	.013	.011	.008	.041	714	0(0.00%)	0(0.00%)				
Oct	.017	.014	.010	.046	737	0(0.00%)	0(0.00%)				
Nov	.023	.020	.011	.051	716	0(0.00%)	0(0.00%)				
Dec	.027	.024	.011	.086	739	0(0.00%)	0(0.00%)				
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.001	.002	.004	.005	.008	.014	.023	.034	.040	.053	.089
-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
1996	.017	.014	.012	.088	8648	0(0.00%)	0(0.00%)				
-----											
n/a - not applicable						* - no data					

NO<sub>2</sub> Summary Statistics for 1996  
 Calgary East Monitoring Station  
 Units are PPM (parts per million)

-----											
Ambient 1-hour average guideline = .210 PPM											
Ambient 24-hour average guideline = .110 PPM											
Ambient annual average guideline = .030 PPM											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.003	.008	.013	.017	.024	.039	.047	.057	.067	.100	.162
Spring	.002	.004	.008	.010	.015	.023	.033	.044	.052	.068	.171
Summer	.002	.003	.005	.008	.014	.021	.029	.036	.040	.051	.066
Autumn	.002	.004	.008	.011	.017	.025	.034	.041	.046	.063	.109
-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
Winter	.038	.034	.018	.159	2169	0(0.00%)	0(0.00%)				
Spring	.026	.022	.015	.169	2181	0(0.00%)	0(0.00%)				
Summer	.022	.019	.011	.064	2149	0(0.00%)	0(0.00%)				
Autumn	.026	.023	.012	.107	2169	0(0.00%)	0(0.00%)				
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.003	.007	.011	.015	.021	.037	.045	.054	.064	.109	.162
Feb	.005	.007	.013	.016	.024	.040	.048	.059	.071	.094	.134
Mar	.007	.008	.010	.013	.020	.029	.042	.053	.063	.110	.171
Apr	.002	.003	.006	.008	.013	.021	.032	.041	.047	.057	.066
May	.003	.004	.008	.010	.014	.021	.028	.034	.037	.043	.060
Jun	.002	.003	.006	.008	.012	.019	.028	.034	.037	.045	.051
Jul	.002	.003	.005	.008	.013	.020	.026	.032	.036	.042	.045
Aug	.002	.003	.006	.009	.016	.025	.033	.040	.046	.058	.066
Sep	.002	.003	.006	.008	.015	.022	.029	.036	.039	.045	.052
Oct	.003	.004	.007	.009	.017	.026	.034	.039	.043	.051	.073
Nov	.006	.009	.012	.014	.019	.030	.040	.049	.056	.072	.109
Dec	.006	.010	.016	.019	.027	.039	.047	.056	.065	.096	.150
-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
Jan	.036	.031	.019	.159	740	0(0.00%)	0(0.00%)				
Feb	.039	.034	.018	.129	690	0(0.00%)	0(0.00%)				
Mar	.033	.028	.019	.164	739	0(0.00%)	0(0.00%)				
Apr	.023	.019	.013	.064	715	0(0.00%)	0(0.00%)				
May	.021	.019	.009	.057	727	0(0.00%)	0(0.00%)				
Jun	.020	.017	.010	.049	713	0(0.00%)	0(0.00%)				
Jul	.020	.017	.009	.043	699	0(0.00%)	0(0.00%)				
Aug	.025	.021	.012	.064	737	0(0.00%)	0(0.00%)				
Sep	.022	.019	.010	.050	714	0(0.00%)	0(0.00%)				
Oct	.025	.022	.011	.070	740	0(0.00%)	0(0.00%)				
Nov	.031	.028	.014	.103	715	0(0.00%)	0(0.00%)				
Dec	.039	.035	.017	.144	739	0(0.00%)	0(0.00%)				
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.002	.004	.008	.010	.017	.026	.037	.047	.054	.074	.171
-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
1996	.028	.024	.015	.169	8668	0(0.00%)	0(0.00%)				
-----											

n/a - not applicable

\* - no data

NO<sub>2</sub> Summary Statistics for 1996  
Fort Saskatchewan Monitoring Station  
Units are PPM (parts per million)

-----											
Ambient 1-hour average guideline = .210 PPM											
Ambient 24-hour average guideline = .110 PPM											
Ambient annual average guideline = .030 PPM											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.002	.003	.005	.006	.010	.024	.039	.047	.052	.059	.075
Spring	.002	.002	.003	.004	.005	.008	.015	.027	.036	.049	.066
Summer	.001	.001	.002	.002	.003	.005	.010	.016	.021	.029	.055
Autumn	.001	.001	.002	.003	.005	.009	.018	.030	.039	.048	.057
-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
Winter	.025	.020	.016	.073	2166	0 (0.00%)	0 (0.00%)				
Spring	.012	.009	.011	.064	2192	0 (0.00%)	0 (0.00%)				
Summer	.007	.006	.006	.054	2192	0 (0.00%)	0 (0.00%)				
Autumn	.013	.009	.011	.056	2167	0 (0.00%)	0 (0.00%)				
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.003	.004	.005	.007	.011	.025	.039	.047	.052	.062	.075
Feb	.003	.003	.004	.006	.011	.028	.042	.052	.054	.060	.064
Mar	.002	.002	.003	.004	.005	.009	.023	.040	.045	.057	.066
Apr	.002	.002	.003	.003	.004	.007	.014	.024	.030	.041	.048
May	.002	.003	.003	.004	.005	.007	.012	.019	.022	.030	.037
Jun	.001	.001	.002	.002	.003	.005	.010	.017	.022	.031	.045
Jul	.001	.001	.002	.002	.003	.005	.008	.013	.015	.019	.023
Aug	.001	.001	.002	.002	.003	.006	.011	.019	.024	.035	.055
Sep	.001	.001	.001	.002	.003	.005	.009	.014	.017	.022	.025
Oct	.001	.002	.003	.003	.005	.011	.018	.025	.028	.033	.040
Nov	.002	.003	.004	.005	.007	.013	.033	.043	.045	.055	.057
Dec	.002	.003	.005	.006	.009	.020	.038	.044	.047	.056	.065
-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
Jan	.026	.020	.016	.072	735	0 (0.00%)	0 (0.00%)				
Feb	.027	.021	.017	.061	691	0 (0.00%)	0 (0.00%)				
Mar	.016	.011	.014	.064	737	0 (0.00%)	0 (0.00%)				
Apr	.011	.008	.009	.046	715	0 (0.00%)	0 (0.00%)				
May	.009	.008	.006	.035	740	0 (0.00%)	0 (0.00%)				
Jun	.008	.006	.007	.044	714	0 (0.00%)	0 (0.00%)				
Jul	.006	.005	.004	.022	739	0 (0.00%)	0 (0.00%)				
Aug	.009	.006	.008	.054	739	0 (0.00%)	0 (0.00%)				
Sep	.007	.005	.005	.024	715	0 (0.00%)	0 (0.00%)				
Oct	.013	.010	.008	.039	738	0 (0.00%)	0 (0.00%)				
Nov	.020	.014	.015	.055	714	0 (0.00%)	0 (0.00%)				
Dec	.023	.018	.015	.063	740	0 (0.00%)	0 (0.00%)				
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.001	.001	.002	.003	.005	.009	.020	.037	.044	.054	.075
-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
1996	.014	.010	.013	.074	8717	0 (0.00%)	0 (0.00%)				
-----											
n/a - not applicable                      * - no data											

NO<sub>2</sub> Summary Statistics for 1996  
Fort McMurray Monitoring Station  
Units are PPM (parts per million)

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Ambient	1-hour average guideline =					.210 PPM					
Ambient	24-hour average guideline =					.110 PPM					
Ambient	annual average guideline =					.030 PPM					
-----											
--BY SEASON--											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.000	.001	.002	.003	.008	.013	.021	.030	.035	.046	.098
Spring	.001	.001	.002	.002	.003	.005	.010	.018	.024	.035	.057
Summer	.000	.001	.002	.002	.003	.004	.007	.010	.013	.019	.024
Autumn	.000	.001	.002	.002	.003	.006	.011	.017	.021	.027	.040
-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
Winter	.015	.012	.010	.098	2062	0 (0.00%)	0 (0.00%)				
Spring	.008	.006	.007	.056	2200	0 (0.00%)	0 (0.00%)				
Summer	.005	.004	.004	.024	2196	0 (0.00%)	0 (0.00%)				
Autumn	.008	.006	.006	.040	1361	0 (0.00%)	0 (0.00%)				
-----											
--BY MONTH--											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.001	.001	.001	.003	.008	.015	.024	.032	.036	.060	.098
Feb	.000	.001	.002	.003	.007	.013	.022	.033	.038	.046	.050
Mar	.001	.001	.002	.002	.003	.007	.015	.024	.030	.040	.047
Apr	.001	.002	.002	.002	.003	.006	.010	.017	.020	.035	.057
May	.001	.001	.001	.002	.003	.004	.007	.012	.017	.025	.030
Jun	.001	.001	.001	.002	.002	.004	.007	.010	.013	.021	.024
Jul	.001	.001	.002	.002	.003	.004	.007	.010	.012	.018	.019
Aug	.000	.001	.001	.002	.003	.005	.008	.011	.013	.019	.024
Sep	.000	.001	.001	.002	.003	.005	.008	.012	.015	.022	.025
Oct	.003	.003	.003	.004	.007	.012	.018	.020	.020	.008	.020
Nov	.001	.001	.002	.002	.005	.009	.015	.020	.023	.030	.040
Dec	.001	.001	.002	.005	.008	.013	.018	.024	.029	.036	.039
-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
Jan	.017	.012	.012	.097	628	0 (0.00%)	0 (0.00%)				
Feb	.016	.011	.011	.050	692	0 (0.00%)	0 (0.00%)				
Mar	.010	.007	.009	.046	741	0 (0.00%)	0 (0.00%)				
Apr	.008	.006	.007	.056	718	0 (0.00%)	0 (0.00%)				
May	.006	.004	.005	.029	741	0 (0.00%)	0 (0.00%)				
Jun	.005	.004	.004	.023	720	0 (0.00%)	0 (0.00%)				
Jul	.005	.004	.003	.018	742	0 (0.00%)	0 (0.00%)				
Aug	.006	.004	.004	.024	734	0 (0.00%)	0 (0.00%)				
Sep	.006	.005	.004	.025	717	0 (0.00%)	0 (0.00%)				
Oct	.012	.010	.006	.017	37	0 (0.00%)	0 (0.00%)				
Nov	.010	.008	.007	.039	607	0 (0.00%)	0 (0.00%)				
Dec	.014	.011	.008	.038	742	0 (0.00%)	0 (0.00%)				
-----											
--BY YEAR--											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.000	.001	.002	.002	.003	.006	.012	.021	.027	.038	.098
-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
1996	.009	.006	.008	.098	7819	0 (0.00%)	0 (0.00%)				
-----											

n/a - not applicable

\* - no data

Ambient 1-hour average guideline = .210 PPM											
Ambient 24-hour average guideline = .110 PPM											
Ambient annual average guideline = .030 PPM											
BY SEASON											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.000	.000	.001	.002	.008	.012	.019	.028	.033	.044	.057
Spring	.000	.000	.000	.000	.000	.002	.004	.009	.013	.021	.043
Summer	.000	.000	.000	.001	.001	.002	.003	.006	.009	.014	.036
Autumn	.000	.000	.000	.001	.001	.003	.006	.011	.016	.026	.035
BY MONTH											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
Winter	.014	.008	.010	.057	2165	0 (0.00%)	0 (0.00%)				
Spring	.003	.000	.004	.043	2112	0 (0.00%)	0 (0.00%)				
Summer	.003	.002	.003	.036	2173	0 (0.00%)	0 (0.00%)				
Autumn	.005	.002	.005	.035	2142	0 (0.00%)	0 (0.00%)				
BY MONTH											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.007	.007	.008	.008	.010	.013	.019	.028	.034	.045	.057
Feb	.006	.007	.007	.008	.010	.015	.020	.027	.029	.041	.050
Mar	.000	.000	.000	.000	.001	.004	.010	.014	.016	.024	.043
Apr	.000	.000	.000	.000	.000	.001	.002	.003	.003	.005	.008
May	.000	.000	.000	.001	.001	.002	.003	.006	.007	.014	.028
Jun	.000	.000	.001	.001	.001	.002	.003	.007	.009	.015	.031
Jul	.000	.000	.000	.001	.001	.002	.003	.004	.007	.012	.014
Aug	.000	.000	.000	.001	.001	.002	.004	.007	.009	.015	.036
Sep	.000	.000	.000	.001	.001	.002	.003	.005	.007	.014	.018
Oct	.000	.000	.001	.001	.002	.003	.006	.011	.014	.021	.024
Nov	.000	.000	.000	.000	.001	.003	.010	.018	.023	.030	.035
Dec	.000	.000	.000	.001	.002	.006	.015	.029	.034	.044	.046
BY YEAR											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
Jan	.016	.014	.008	.050	741	0 (0.00%)	0 (0.00%)				
Feb	.016	.015	.007	.044	682	0 (0.00%)	0 (0.00%)				
Mar	.006	.001	.006	.043	670	0 (0.00%)	0 (0.00%)				
Apr	.001	.000	.001	.008	712	0 (0.00%)	0 (0.00%)				
May	.003	.001	.003	.028	730	0 (0.00%)	0 (0.00%)				
Jun	.003	.002	.003	.031	693	0 (0.00%)	0 (0.00%)				
Jul	.002	.001	.002	.014	741	0 (0.00%)	0 (0.00%)				
Aug	.003	.001	.003	.036	739	0 (0.00%)	0 (0.00%)				
Sep	.003	.002	.003	.018	715	0 (0.00%)	0 (0.00%)				
Oct	.005	.003	.004	.024	713	0 (0.00%)	0 (0.00%)				
Nov	.006	.001	.007	.035	714	0 (0.00%)	0 (0.00%)				
Dec	.010	.003	.011	.046	742	0 (0.00%)	0 (0.00%)				
BY YEAR											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.000	.000	.000	.000	.001	.003	.009	.016	.022	.034	.057
BY YEAR											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
1996	.006	.002	.008	.057	8592	0 (0.00%)	0 (0.00%)				
n/a - not applicable * - no data											



Annual Average Concentration									
Year: 1996									
Pollutant: NO <sub>2</sub> [ppm]									
Year	EDMU	ERMU	EIMU	CDMU	CRMU	CIMU	Fort Sask.	Fort McMurray	Royal Park
1976	0.053	0.024	0.009	0.032	0.016	0.024	*	0.032	*
1977	0.039	0.020	0.016	0.044	0.025	0.031	*	*	*
1978	0.042	0.028	0.019	0.046	0.027	0.032	*	*	*
1979	0.043	0.029	0.023	0.047	0.023	0.027	*	0.010a	*
1980	0.036	0.023	0.017	0.041	0.019	0.025	*	b	*
1981	0.043	0.031	0.022	0.036	0.018	0.020	b	0.010	*
1982	0.037	0.027	0.017	0.047	0.018	0.030	0.020	0.010	*
1983	0.027	0.025	0.018	0.037	0.018	0.028	0.020	0.010	*
1984	0.026	0.023	0.013	0.033	0.018	0.028	0.020	0.010a	*
1985	0.029	0.020	0.019	0.036	0.015	0.027	0.010	0.010a	*
1986	0.030	0.019	0.016	0.035	0.021	0.027	0.013	0.010	*
1987	0.031	0.020	0.016	0.034	0.020	0.025	0.014	0.010	*
1988	0.028	0.020	0.016	0.035	0.019	0.026	0.013	0.010	*
1989	0.026	0.022	0.015	0.035	0.020	0.029	0.009a	0.010	*
1990	0.027	0.025	0.019	0.034	0.018	0.027	0.013	0.011	*
1991	0.029	0.026	0.021	0.037	0.018	0.026	0.013	0.010	*
1992	0.026	0.022	0.020	0.032	0.017	0.025	0.010	0.009	*
1993	0.027	0.021	0.016	0.031	0.017	0.026	0.013	0.005	*
1994	0.027	0.023	0.017	0.029	0.017	0.027	0.014	0.009	0.008
1995	0.027	0.019	0.016	0.028	0.018	0.027	0.014	0.009	0.011
1996	0.025	0.024	0.018	0.029	0.017	0.028	0.014	0.009	0.006

a 50% to 75% of data available  
b less than 50% of data available  
\* no data available

NO Summary Statistics for 1996  
Edmonton Central Monitoring Station  
Units are PPM (parts per million)

No guidelines											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.001	.002	.005	.008	.015	.031	.062	.110	.155	.254	.355
Spring	.000	.001	.002	.003	.006	.012	.022	.036	.051	.120	.243
Summer	.000	.000	.001	.001	.002	.005	.010	.017	.024	.053	.119
Autumn	.001	.001	.002	.004	.009	.021	.038	.065	.094	.151	.301
-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Winter	.048	.029	.052	.354	2167	n/a					
Spring	.018	.010	.021	.243	2188	n/a					
Summer	.008	.004	.010	.119	2094	n/a					
Autumn	.030	.018	.031	.300	2086	n/a					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.001	.002	.005	.009	.014	.031	.062	.119	.182	.294	.355
Feb	.001	.002	.004	.006	.014	.025	.047	.090	.120	.244	.354
Mar	.001	.001	.003	.005	.009	.018	.031	.050	.069	.146	.243
Apr	.001	.001	.002	.003	.005	.011	.019	.031	.045	.098	.224
May	.000	.000	.001	.002	.004	.009	.016	.025	.033	.062	.090
Jun	.000	.000	.001	.001	.002	.004	.008	.015	.023	.060	.096
Jul	.000	.000	.001	.001	.003	.007	.012	.018	.025	.047	.076
Aug	.000	.000	.001	.001	.002	.005	.009	.017	.023	.055	.119
Sep	.001	.001	.002	.002	.005	.012	.023	.039	.052	.106	.184
Oct	.001	.002	.003	.005	.009	.021	.035	.058	.077	.117	.174
Nov	.002	.005	.008	.010	.018	.034	.055	.097	.123	.200	.301
Dec	.002	.003	.006	.008	.015	.040	.074	.117	.160	.223	.324
-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Jan	.050	.030	.057	.354	740	n/a					
Feb	.040	.025	.045	.353	688	n/a					
Mar	.025	.016	.027	.242	738	n/a					
Apr	.016	.010	.018	.223	712	n/a					
May	.012	.007	.012	.090	738	n/a					
Jun	.007	.003	.010	.096	720	n/a					
Jul	.009	.005	.009	.076	715	n/a					
Aug	.008	.004	.011	.119	659	n/a					
Sep	.018	.011	.020	.183	713	n/a					
Oct	.027	.018	.025	.173	653	n/a					
Nov	.044	.032	.039	.299	720	n/a					
Dec	.054	.034	.050	.322	739	n/a					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.000	.001	.002	.002	.006	.014	.031	.062	.095	.187	.355
-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
1996	.026	.012	.036	.355	8535	n/a					
-----											
n/a - not applicable                      * - no data											

NO Summary Statistics for 1996  
Edmonton Northwest Monitoring Station  
Units are PPM (parts per million)

No guidelines											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.000	.000	.001	.003	.007	.023	.060	.123	.181	.293	.507
Spring	.000	.000	.000	.001	.002	.007	.015	.038	.062	.143	.585
Summer	.000	.000	.001	.002	.004	.008	.014	.027	.039	.086	.177
Autumn	.000	.000	.001	.002	.005	.016	.041	.099	.152	.230	.410
-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Winter	.047	.018	.063	.507	2154	n/a					
Spring	.016	.004	.033	.585	2196	n/a					
Summer	.012	.006	.015	.177	2183	n/a					
Autumn	.035	.011	.051	.410	2155	n/a					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.000	.000	.001	.002	.005	.019	.047	.092	.126	.208	.395
Feb	.000	.000	.002	.003	.011	.025	.053	.098	.139	.243	.316
Mar	.000	.000	.001	.001	.003	.010	.026	.061	.096	.219	.585
Apr	.000	.000	.000	.001	.003	.007	.015	.041	.062	.139	.467
May	.000	.000	.000	.001	.002	.004	.009	.017	.027	.053	.129
Jun	.000	.000	.001	.001	.005	.009	.017	.031	.045	.094	.108
Jul	.000	.000	.001	.002	.004	.008	.013	.022	.030	.074	.121
Aug	.000	.000	.001	.002	.004	.008	.013	.029	.045	.094	.177
Sep	.000	.000	.001	.001	.003	.009	.019	.043	.069	.216	.283
Oct	.000	.001	.002	.004	.011	.022	.049	.099	.144	.213	.410
Nov	.000	.000	.000	.001	.005	.020	.066	.137	.175	.281	.400
Dec	.000	.000	.002	.003	.009	.026	.093	.178	.248	.386	.507
-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Jan	.035	.013	.046	.395	744	n/a					
Feb	.041	.019	.047	.316	666	n/a					
Mar	.024	.008	.045	.585	740	n/a					
Apr	.016	.005	.031	.467	716	n/a					
May	.008	.002	.011	.129	740	n/a					
Jun	.014	.006	.017	.108	717	n/a					
Jul	.011	.006	.012	.121	722	n/a					
Aug	.013	.006	.017	.177	744	n/a					
Sep	.020	.006	.035	.283	715	n/a					
Oct	.039	.020	.047	.410	725	n/a					
Nov	.048	.011	.063	.400	715	n/a					
Dec	.064	.023	.083	.507	744	n/a					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.000	.000	.001	.002	.004	.011	.029	.073	.117	.226	.585
-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
1996	.028	.008	.046	.585	8688	n/a					
-----											
n/a - not applicable.                      * - no data											

NO Summary Statistics for 1996  
Edmonton East Monitoring Station  
Units are PPM (parts per million)

No guidelines											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.000	.000	.001	.002	.006	.017	.051	.093	.125	.190	.391
Spring	.000	.000	.001	.001	.002	.005	.011	.025	.041	.097	.208
Summer	.000	.000	.000	.000	.001	.003	.007	.015	.026	.056	.129
Autumn	.000	.000	.000	.001	.003	.008	.020	.059	.087	.155	.229
-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Winter	.035	.011	.044	.391	2137	n/a					
Spring	.011	.004	.017	.208	1967	n/a					
Summer	.006	.001	.011	.129	2179	n/a					
Autumn	.020	.004	.031	.229	2141	n/a					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.000	.000	.001	.003	.008	.021	.055	.096	.132	.230	.391
Feb	.000	.000	.002	.003	.007	.017	.047	.080	.109	.156	.217
Mar	.000	.000	.001	.001	.003	.007	.015	.029	.050	.109	.208
Apr	.000	.000	.000	.001	.002	.005	.011	.031	.048	.101	.109
May	.000	.000	.001	.001	.002	.003	.007	.011	.017	.040	.091
Jun	.000	.000	.000	.000	.001	.002	.006	.016	.029	.048	.063
Jul	.000	.000	.000	.001	.001	.004	.008	.013	.019	.041	.069
Aug	.000	.000	.000	.000	.001	.003	.008	.018	.030	.078	.129
Sep	.000	.000	.000	.000	.002	.004	.010	.019	.030	.062	.085
Oct	.000	.000	.001	.001	.004	.010	.021	.051	.085	.176	.229
Nov	.000	.000	.000	.001	.004	.011	.041	.089	.121	.167	.225
Dec	.000	.000	.000	.001	.004	.013	.048	.104	.134	.188	.286
-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Jan	.039	.014	.047	.391	737	n/a					
Feb	.032	.013	.036	.217	660	n/a					
Mar	.014	.005	.022	.208	730	n/a					
Apr	.011	.003	.018	.109	617	n/a					
May	.006	.003	.008	.091	620	n/a					
Jun	.006	.001	.009	.063	708	n/a					
Jul	.006	.002	.007	.069	738	n/a					
Aug	.008	.001	.014	.129	733	n/a					
Sep	.008	.002	.011	.085	713	n/a					
Oct	.021	.006	.031	.229	716	n/a					
Nov	.030	.008	.040	.225	712	n/a					
Dec	.034	.007	.046	.286	740	n/a					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.000	.000	.000	.001	.002	.006	.018	.052	.082	.152	.391
-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
1996	.018	.004	.031	.391	8424	n/a					
-----											
n/a - not applicable				* - no data							

n/a - not applicable

\* - no data

NO Summary Statistics for 1996  
Calgary Central Monitoring Station  
Units are PPM (parts per million)

No guidelines											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.000	.001	.002	.004	.010	.027	.066	.128	.182	.302	.530
Spring	.000	.000	.000	.001	.003	.007	.016	.035	.059	.187	.637
Summer	.000	.000	.001	.001	.003	.006	.013	.027	.041	.081	.245
Autumn	.000	.000	.002	.003	.008	.018	.039	.074	.110	.235	.394
-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Winter	.050	.022	.065	.530	2120	n/a					
Spring	.017	.004	.041	.637	2192	n/a					
Summer	.012	.004	.017	.245	2191	n/a					
Autumn	.032	.015	.044	.394	2168	n/a					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.000	.001	.002	.004	.009	.031	.076	.148	.193	.294	.530
Feb	.000	.001	.002	.003	.009	.022	.062	.122	.173	.287	.373
Mar	.000	.000	.001	.002	.005	.011	.025	.058	.124	.394	.637
Apr	.000	.000	.000	.001	.002	.005	.012	.027	.054	.111	.158
May	.000	.000	.000	.001	.002	.006	.015	.027	.035	.074	.087
Jun	.000	.000	.001	.001	.002	.006	.012	.023	.035	.080	.121
Jul	.000	.000	.001	.001	.003	.007	.013	.024	.034	.061	.116
Aug	.000	.000	.001	.001	.003	.006	.015	.035	.054	.095	.245
Sep	.000	.000	.001	.002	.005	.012	.028	.047	.062	.109	.162
Oct	.000	.001	.001	.003	.008	.016	.038	.074	.104	.239	.393
Nov	.001	.003	.005	.007	.014	.028	.053	.109	.162	.321	.394
Dec	.000	.001	.002	.005	.012	.030	.060	.112	.161	.346	.489
-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Jan	.055	.023	.070	.530	702	n/a					
Feb	.047	.020	.061	.373	691	n/a					
Mar	.029	.009	.064	.637	738	n/a					
Apr	.012	.003	.020	.158	715	n/a					
May	.010	.003	.013	.087	739	n/a					
Jun	.011	.004	.015	.121	716	n/a					
Jul	.010	.005	.012	.116	738	n/a					
Aug	.014	.005	.023	.245	737	n/a					
Sep	.020	.009	.022	.162	716	n/a					
Oct	.031	.015	.041	.393	739	n/a					
Nov	.047	.028	.058	.393	713	n/a					
Dec	.048	.023	.062	.489	727	n/a					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.000	.000	.001	.002	.004	.012	.031	.069	.110	.241	.637
-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
1996	.028	.009	.047	.637	8671	n/a					
-----											
n/a - not applicable				* - no data							



NO Summary Statistics for 1996  
Calgary Northwest Monitoring Station  
Units are PPM (parts per million)

No guidelines											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.000	.000	.000	.000	.002	.006	.021	.051	.087	.180	.323
Spring	.000	.000	.000	.000	.000	.000	.002	.008	.013	.069	.194
Summer	.000	.000	.000	.000	.000	.001	.003	.007	.012	.026	.086
Autumn	.000	.000	.000	.000	.001	.003	.012	.028	.045	.112	.255
-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Winter	.019	.002	.036	.323	2170	n/a					
Spring	.004	.000	.014	.194	2115	n/a					
Summer	.003	.000	.005	.086	2196	n/a					
Autumn	.011	.001	.021	.255	2167	n/a					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.000	.000	.000	.001	.002	.007	.026	.061	.097	.206	.300
Feb	.000	.000	.000	.000	.000	.004	.014	.049	.088	.179	.316
Mar	.000	.000	.000	.000	.000	.001	.004	.013	.035	.136	.194
Apr	.000	.000	.000	.000	.000	.000	.001	.005	.009	.042	.121
May	.000	.000	.000	.000	.000	.001	.002	.005	.009	.022	.049
Jun	.000	.000	.000	.000	.000	.001	.002	.006	.010	.024	.040
Jul	.000	.000	.000	.000	.000	.001	.002	.007	.012	.025	.043
Aug	.000	.000	.000	.000	.000	.001	.003	.009	.013	.031	.086
Sep	.000	.000	.000	.000	.001	.002	.006	.016	.021	.050	.080
Oct	.000	.000	.000	.000	.001	.003	.011	.028	.047	.112	.255
Nov	.000	.000	.001	.001	.002	.007	.020	.042	.065	.163	.206
Dec	.000	.000	.000	.001	.002	.007	.020	.044	.067	.176	.323
-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Jan	.022	.005	.037	.300	740	n/a					
Feb	.016	.001	.034	.316	691	n/a					
Mar	.007	.000	.022	.194	662	n/a					
Apr	.002	.000	.008	.121	715	n/a					
May	.002	.000	.004	.049	738	n/a					
Jun	.002	.000	.004	.040	716	n/a					
Jul	.003	.000	.005	.043	740	n/a					
Aug	.003	.000	.006	.086	740	n/a					
Sep	.005	.001	.009	.080	714	n/a					
Oct	.011	.001	.021	.255	737	n/a					
Nov	.017	.005	.028	.206	716	n/a					
Dec	.018	.004	.035	.323	739	n/a					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.000	.000	.000	.000	.000	.002	.007	.023	.042	.119	.323
-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
1996	.009	.000	.023	.323	8648	n/a					
-----											
n/a - not applicable				* - no data							

n/a - not applicable

\* - no data

NO Summary Statistics for 1996  
Calgary East Monitoring Station  
Units are PPM (parts per million)

No guidelines											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.000	.000	.000	.001	.007	.041	.121	.224	.320	.484	.887
Spring	.000	.000	.000	.000	.001	.007	.023	.064	.111	.253	.681
Summer	.000	.000	.000	.000	.001	.007	.018	.041	.065	.135	.216
Autumn	.000	.000	.000	.000	.004	.021	.061	.125	.194	.392	.687
-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Winter	.084	.015	.109	.887	2169	n/a					
Spring	.025	.001	.053	.681	2181	n/a					
Summer	.015	.001	.025	.216	2149	n/a					
Autumn	.048	.007	.075	.687	2169	n/a					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.000	.000	.000	.001	.007	.037	.116	.195	.262	.449	.887
Feb	.000	.000	.000	.001	.007	.042	.131	.256	.364	.486	.617
Mar	.000	.000	.000	.000	.002	.012	.045	.114	.201	.394	.681
Apr	.000	.000	.000	.000	.000	.005	.020	.050	.089	.216	.308
May	.000	.000	.000	.000	.001	.006	.016	.036	.055	.111	.192
Jun	.000	.000	.000	.000	.000	.004	.014	.036	.058	.151	.172
Jul	.000	.000	.000	.000	.001	.007	.016	.037	.059	.104	.154
Aug	.000	.000	.000	.000	.001	.010	.022	.054	.073	.154	.216
Sep	.000	.000	.000	.000	.003	.015	.036	.074	.093	.169	.257
Oct	.000	.000	.000	.000	.004	.022	.062	.129	.200	.419	.687
Nov	.000	.000	.001	.002	.007	.030	.086	.180	.282	.453	.592
Dec	.000	.000	.001	.002	.009	.043	.115	.227	.317	.488	.625
-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Jan	.077	.012	.103	.887	740	n/a					
Feb	.091	.015	.115	.617	690	n/a					
Mar	.041	.003	.077	.681	739	n/a					
Apr	.019	.000	.038	.308	715	n/a					
May	.014	.001	.022	.192	727	n/a					
Jun	.013	.001	.025	.172	713	n/a					
Jul	.014	.001	.021	.154	699	n/a					
Aug	.019	.002	.029	.216	737	n/a					
Sep	.028	.004	.036	.257	714	n/a					
Oct	.049	.005	.076	.687	740	n/a					
Nov	.067	.017	.094	.592	715	n/a					
Dec	.083	.019	.108	.625	739	n/a					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.000	.000	.000	.000	.002	.013	.047	.123	.196	.394	.887
-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
1996	.043	.003	.077	.887	8668	n/a					
-----											
n/a - not applicable				* - no data							

n/a - not applicable

\* - no data

NO Summary Statistics for 1996  
Fort Saskatchewan Monitoring Station  
Units are PPM (parts per million)

No guidelines											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.000	.000	.001	.002	.004	.011	.048	.104	.136	.204	.309
Spring	.000	.000	.001	.001	.002	.003	.006	.013	.023	.062	.228
Summer	.000	.000	.000	.000	.001	.001	.003	.008	.014	.037	.085
Autumn	.000	.000	.000	.001	.001	.004	.011	.045	.084	.139	.285
-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Winter	.034	.011	.047	.309	2166	n/a					
Spring	.006	.003	.013	.228	2192	n/a					
Summer	.003	.000	.007	.085	2192	n/a					
Autumn	.015	.002	.030	.285	2167	n/a					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.000	.001	.001	.002	.005	.014	.055	.115	.139	.222	.309
Feb	.000	.001	.001	.002	.004	.010	.041	.081	.113	.175	.242
Mar	.000	.001	.001	.001	.002	.004	.008	.025	.045	.087	.228
Apr	.000	.001	.001	.001	.002	.003	.005	.010	.017	.051	.081
May	.000	.000	.000	.001	.001	.002	.005	.008	.013	.031	.072
Jun	.000	.000	.000	.000	.001	.001	.003	.007	.013	.037	.085
Jul	.000	.000	.000	.000	.001	.001	.003	.006	.012	.030	.050
Aug	.000	.000	.000	.000	.001	.001	.004	.011	.020	.045	.073
Sep	.000	.000	.000	.000	.001	.002	.005	.011	.020	.057	.096
Oct	.000	.000	.000	.001	.001	.003	.012	.035	.055	.097	.154
Nov	.000	.000	.001	.001	.003	.007	.038	.092	.125	.179	.285
Dec	.000	.000	.001	.001	.003	.008	.050	.116	.139	.217	.280
-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Jan	.038	.014	.050	.309	735	n/a					
Feb	.029	.012	.039	.242	691	n/a					
Mar	.010	.004	.019	.228	737	n/a					
Apr	.005	.003	.008	.081	715	n/a					
May	.004	.002	.006	.072	740	n/a					
Jun	.003	.000	.007	.085	714	n/a					
Jul	.003	.001	.005	.050	739	n/a					
Aug	.004	.000	.008	.073	739	n/a					
Sep	.005	.001	.010	.096	715	n/a					
Oct	.012	.003	.020	.154	738	n/a					
Nov	.029	.008	.043	.285	714	n/a					
Dec	.035	.007	.050	.280	740	n/a					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.000	.000	.000	.001	.001	.003	.010	.044	.082	.148	.309
-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
1996	.015	.002	.031	.309	8717	n/a					
-----											
n/a - not applicable                      * - no data											

NO Summary Statistics for 1996  
Fort McMurray Monitoring Station  
Units are PPM (parts per million)

No guidelines											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.000	.000	.001	.001	.002	.006	.018	.040	.055	.116	.214
Spring	.000	.000	.001	.001	.001	.002	.003	.007	.012	.028	.120
Summer	.000	.000	.000	.001	.001	.002	.003	.008	.012	.022	.047
Autumn	.000	.000	.001	.001	.001	.003	.007	.017	.027	.071	.174
-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Winter	.015	.006	.023	.214	2062	n/a					
Spring	.004	.002	.006	.120	2200	n/a					
Summer	.003	.001	.004	.047	2196	n/a					
Autumn	.007	.003	.013	.174	1361	n/a					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.000	.000	.001	.001	.002	.007	.019	.042	.059	.103	.214
Feb	.000	.001	.001	.001	.002	.006	.018	.043	.077	.175	.214
Mar	.000	.001	.001	.001	.001	.003	.006	.015	.022	.057	.120
Apr	.000	.001	.001	.001	.001	.002	.003	.005	.008	.025	.042
May	.000	.000	.000	.001	.001	.001	.002	.004	.006	.012	.025
Jun	.000	.000	.000	.001	.001	.001	.002	.004	.007	.013	.019
Jul	.000	.000	.000	.001	.001	.001	.003	.006	.010	.021	.035
Aug	.000	.000	.000	.001	.001	.002	.006	.012	.017	.028	.047
Sep	.000	.000	.001	.001	.001	.002	.005	.012	.018	.032	.057
Oct	.000	.000	.000	.000	.009	.029	.040	.085	.091	.035	.094
Nov	.000	.000	.001	.001	.002	.003	.009	.017	.028	.087	.174
Dec	.000	.000	.001	.001	.003	.006	.016	.034	.049	.065	.126
-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Jan	.015	.005	.021	.214	628	n/a					
Feb	.017	.006	.029	.214	692	n/a					
Mar	.006	.003	.010	.120	741	n/a					
Apr	.003	.002	.004	.042	718	n/a					
May	.002	.001	.002	.025	741	n/a					
Jun	.002	.001	.002	.019	720	n/a					
Jul	.003	.001	.004	.035	742	n/a					
Aug	.005	.002	.006	.047	734	n/a					
Sep	.005	.002	.007	.057	717	n/a					
Oct	.033	.009	.028	.094	37	n/a					
Nov	.008	.003	.016	.174	607	n/a					
Dec	.013	.006	.015	.126	742	n/a					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.000	.000	.001	.001	.001	.002	.006	.017	.029	.070	.214
-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
1996	.007	.002	.014	.214	7819	n/a					
-----											
n/a - not applicable				* - no data							

NO Summary Statistics for 1996  
 Royal Park Monitoring Station (Vegreville)  
 Units are PPM (parts per million)

No guidelines											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.000	.000	.000	.000	.001	.003	.004	.008	.010	.023	.064
Spring	.000	.000	.000	.000	.000	.000	.002	.003	.005	.008	.020
Summer	.000	.000	.000	.000	.000	.000	.001	.001	.001	.002	.008
Autumn	.000	.000	.000	.000	.000	.000	.001	.002	.003	.013	.028
-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Winter	.004	.001	.005	.064	2165	n/a					
Spring	.001	.000	.002	.020	2112	n/a					
Summer	.000	.000	.001	.008	2173	n/a					
Autumn	.001	.000	.002	.028	2142	n/a					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.001	.002	.002	.002	.002	.003	.004	.008	.014	.034	.061
Feb	.001	.001	.002	.002	.002	.003	.005	.007	.008	.011	.013
Mar	.000	.000	.000	.000	.001	.003	.004	.005	.008	.015	.020
Apr	.000	.000	.000	.000	.000	.000	.001	.002	.002	.004	.006
May	.000	.000	.000	.000	.000	.000	.000	.001	.001	.007	.013
Jun	.000	.000	.000	.000	.000	.000	.001	.001	.001	.002	.005
Jul	.000	.000	.000	.000	.000	.000	.001	.001	.001	.002	.008
Aug	.000	.000	.000	.000	.000	.000	.001	.001	.002	.003	.007
Sep	.000	.000	.000	.000	.000	.000	.001	.001	.002	.007	.017
Oct	.000	.000	.000	.000	.000	.001	.001	.002	.003	.006	.014
Nov	.000	.000	.000	.000	.000	.000	.001	.004	.008	.018	.028
Dec	.000	.000	.000	.000	.000	.001	.002	.006	.010	.023	.064
-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Jan	.005	.004	.006	.060	741	n/a					
Feb	.004	.003	.002	.012	682	n/a					
Mar	.003	.001	.003	.020	670	n/a					
Apr	.001	.000	.001	.006	712	n/a					
May	.000	.000	.001	.013	730	n/a					
Jun	.000	.000	.001	.005	693	n/a					
Jul	.000	.000	.001	.008	741	n/a					
Aug	.001	.000	.001	.007	739	n/a					
Sep	.001	.000	.001	.017	715	n/a					
Oct	.001	.000	.001	.014	713	n/a					
Nov	.002	.000	.003	.028	714	n/a					
Dec	.002	.000	.005	.064	742	n/a					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.000	.000	.000	.000	.000	.000	.002	.004	.006	.013	.064
-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
1996	.002	.000	.003	.064	8592	n/a					
-----											
n/a - not applicable                      * - no data											



Annual Average Concentration									
Year: 1996									
Pollutant: NO [ppm]									
Year	EDMU	ERMU	EIMU	CDMU	CRMU	CIMU	Fort Sask.	Fort McMurray	Royal Park
1976	**	**	**	**	**	**	*	**	*
1977	**	**	**	**	**	**	*	*	*
1978	**	**	**	**	**	**	*	*	*
1979	**	**	**	**	**	**	*	**a	*
1980	**	**	**	**	**	**	*	b	*
1981	**	**	**	**	**	**	b	**	*
1982	**	**	**	**	**	**	**	**	*
1983	**	**	**	**	**	**	**	**	*
1984	**	**	**	**	**	**	**	**a	*
1985	**	**	**	**	**	**	**	**a	*
1986	**	**	**	**	**	**	**	**	*
1987	0.041	0.046	0.017	0.036	0.013	0.051	0.016	0.011	*
1988	0.036	0.036	0.017	0.039	0.013	0.056	0.013	0.010	*
1989	0.037	0.034	0.017	0.032	0.011	0.047	0.011a	0.009	*
1990	0.034	0.037	0.020	0.029	0.010	0.043	0.012	0.012	*
1991	0.035	0.042	0.023	0.034	0.012	0.049	0.013	0.010	*
1992	0.033	0.036	0.020	0.031	0.012	0.049	0.011	0.010	*
1993	0.032	0.035	0.015	0.029	0.010	0.047	0.014	0.007	*
1994	0.031	0.034	0.016	0.031	0.011	0.046	0.014	0.008	0.006
1995	0.032	0.028	0.017	0.032	0.012	0.046	0.015	0.007	0.004
1996	0.026	0.028	0.018	0.028	0.009	0.043	0.015	0.007	0.002

a 50% to 75% of data available

b less than 50% of data available

\*\* annual average not calculated

\* no data available

NO<sub>x</sub> Summary Statistics for 1996  
Edmonton Central Monitoring Station  
Units are PPM (parts per million)

No guidelines											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.007	.015	.023	.029	.042	.065	.104	.157	.206	.310	.434
Spring	.004	.008	.012	.015	.023	.035	.052	.074	.096	.177	.318
Summer	.000	.004	.006	.007	.011	.018	.027	.038	.046	.080	.153
Autumn	.004	.007	.011	.016	.027	.044	.067	.101	.132	.199	.384
-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Winter	.083	.066	.061	.427	2167	n/a					
Spring	.043	.035	.031	.314	2188	n/a					
Summer	.021	.017	.015	.153	2094	n/a					
Autumn	.053	.042	.040	.380	2086	n/a					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.007	.011	.022	.028	.041	.061	.101	.166	.233	.368	.434
Feb	.013	.016	.022	.028	.040	.060	.086	.136	.170	.306	.423
Mar	.009	.012	.017	.022	.033	.047	.068	.098	.126	.215	.318
Apr	.008	.011	.014	.016	.023	.034	.050	.068	.085	.147	.269
May	.004	.006	.009	.011	.017	.028	.039	.053	.064	.091	.139
Jun	.002	.003	.005	.006	.010	.015	.022	.033	.043	.081	.120
Jul	.000	.004	.006	.008	.012	.021	.030	.041	.048	.076	.100
Aug	.004	.005	.007	.008	.012	.018	.027	.037	.047	.097	.153
Sep	.004	.004	.008	.010	.017	.029	.044	.062	.079	.137	.210
Oct	.007	.010	.015	.018	.027	.043	.064	.088	.111	.150	.207
Nov	.015	.021	.028	.034	.044	.063	.093	.140	.170	.256	.384
Dec	.013	.016	.025	.032	.045	.077	.117	.166	.213	.288	.395
-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Jan	.083	.064	.068	.427	740	n/a					
Feb	.074	.061	.054	.410	688	n/a					
Mar	.057	.047	.038	.309	738	n/a					
Apr	.040	.034	.026	.261	712	n/a					
May	.031	.026	.018	.135	738	n/a					
Jun	.018	.015	.014	.118	720	n/a					
Jul	.023	.018	.014	.100	715	n/a					
Aug	.022	.018	.016	.149	659	n/a					
Sep	.034	.027	.025	.206	713	n/a					
Oct	.049	.041	.030	.200	653	n/a					
Nov	.076	.065	.047	.369	720	n/a					
Dec	.090	.073	.059	.382	739	n/a					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.000	.005	.009	.012	.021	.037	.063	.102	.139	.242	.434
-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
1996	.050	.036	.046	.434	8535	n/a					
-----											
n/a - not applicable				* - no data							

n/a - not applicable

\* - no data

NO<sub>x</sub> Summary Statistics for 1996  
Edmonton Northwest Monitoring Station  
Units are PPM (parts per million)

No guidelines											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.001	.004	.008	.011	.023	.047	.096	.166	.228	.363	.583
Spring	.003	.006	.008	.010	.016	.026	.052	.096	.131	.227	.704
Summer	.001	.003	.006	.009	.014	.024	.035	.054	.076	.134	.304
Autumn	.000	.003	.007	.010	.019	.033	.071	.139	.190	.286	.486
-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Winter	.074	.046	.076	.582	2154	n/a					
Spring	.043	.029	.050	.701	2196	n/a					
Summer	.030	.022	.026	.303	2183	n/a					
Autumn	.057	.035	.062	.486	2155	n/a					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.003	.003	.006	.008	.014	.037	.070	.119	.160	.251	.441
Feb	.001	.004	.010	.015	.034	.053	.094	.145	.191	.320	.403
Mar	.003	.005	.009	.011	.017	.036	.079	.131	.173	.331	.704
Apr	.005	.006	.010	.013	.018	.027	.056	.099	.123	.206	.573
May	.005	.006	.008	.009	.013	.021	.034	.056	.079	.119	.203
Jun	.001	.002	.006	.009	.018	.029	.037	.059	.082	.136	.165
Jul	.003	.004	.006	.008	.013	.020	.030	.042	.054	.116	.171
Aug	.002	.003	.006	.009	.013	.022	.035	.063	.099	.182	.304
Sep	.000	.002	.005	.007	.012	.021	.035	.062	.091	.223	.323
Oct	.001	.003	.009	.014	.024	.041	.077	.131	.176	.247	.486
Nov	.006	.007	.010	.014	.025	.048	.107	.186	.234	.355	.480
Dec	.004	.007	.010	.015	.028	.060	.137	.228	.302	.456	.583
-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Jan	.052	.032	.054	.438	744	n/a					
Feb	.072	.051	.062	.402	666	n/a					
Mar	.058	.037	.066	.701	740	n/a					
Apr	.044	.032	.046	.568	716	n/a					
May	.028	.022	.024	.198	740	n/a					
Jun	.033	.026	.024	.164	717	n/a					
Jul	.024	.020	.018	.168	722	n/a					
Aug	.031	.022	.033	.302	744	n/a					
Sep	.032	.020	.038	.323	715	n/a					
Oct	.060	.041	.055	.485	725	n/a					
Nov	.078	.050	.077	.474	715	n/a					
Dec	.097	.060	.096	.579	744	n/a					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.000	.004	.007	.010	.017	.030	.060	.118	.168	.289	.704
-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
1996	.051	.032	.059	.704	8688	n/a					
-----											
n/a - not applicable				* - no data							

n/a - not applicable

\* - no data

NO<sub>x</sub> Summary Statistics for 1996  
Edmonton East Monitoring Station  
Units are PPM (parts per million)

No guidelines											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.003	.005	.008	.012	.022	.044	.087	.137	.174	.246	.475
Spring	.001	.003	.004	.006	.009	.018	.033	.056	.076	.134	.266
Summer	.001	.002	.003	.004	.006	.012	.021	.036	.049	.085	.178
Autumn	.002	.003	.005	.006	.011	.021	.043	.091	.126	.201	.301
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Winter	.062	.042	.055	.472	2138	n/a					
Spring	.026	.018	.027	.265	1967	n/a					
Summer	.017	.012	.017	.177	2179	n/a					
Autumn	.036	.022	.041	.299	2141	n/a					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.003	.005	.009	.016	.027	.052	.093	.139	.178	.285	.475
Feb	.005	.006	.010	.013	.023	.045	.080	.124	.165	.212	.278
Mar	.002	.004	.005	.007	.013	.024	.042	.066	.096	.171	.266
Apr	.001	.002	.004	.005	.008	.018	.033	.060	.082	.121	.133
May	.003	.003	.004	.005	.008	.013	.022	.035	.044	.063	.129
Jun	.002	.002	.003	.004	.005	.010	.019	.042	.057	.082	.096
Jul	.001	.002	.003	.004	.007	.012	.019	.028	.037	.059	.095
Aug	.001	.002	.003	.004	.007	.014	.023	.039	.059	.115	.178
Sep	.002	.002	.004	.005	.007	.013	.021	.034	.046	.089	.104
Oct	.003	.004	.006	.008	.014	.026	.046	.083	.118	.219	.269
Nov	.004	.005	.007	.008	.015	.031	.075	.127	.165	.218	.301
Dec	.004	.005	.007	.009	.016	.037	.082	.146	.178	.233	.345
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Jan	.068	.048	.058	.472	737	n/a					
Feb	.060	.043	.049	.273	661	n/a					
Mar	.034	.023	.033	.264	730	n/a					
Apr	.026	.017	.025	.132	617	n/a					
May	.017	.013	.014	.126	620	n/a					
Jun	.016	.011	.017	.094	708	n/a					
Jul	.015	.011	.011	.094	738	n/a					
Aug	.020	.013	.021	.177	733	n/a					
Sep	.017	.013	.015	.102	713	n/a					
Oct	.038	.026	.039	.266	716	n/a					
Nov	.053	.033	.052	.297	712	n/a					
Dec	.059	.037	.057	.341	740	n/a					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.001	.003	.004	.006	.010	.020	.042	.088	.123	.203	.475
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
1996	.035	.021	.042	.474	8425	n/a					

n/a - not applicable

\* - no data

NO<sub>x</sub> Summary Statistics for 1996  
 Calgary Central Monitoring Station  
 Units are PPM (parts per million)

No guidelines										
-----BY SEASON-----										
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99% MAX
Winter	.008	.012	.021	.027	.040	.065	.108	.181	.243	.387 .632
Spring	.006	.010	.013	.016	.024	.036	.051	.076	.107	.265 .741
Summer	.003	.007	.011	.013	.018	.028	.040	.059	.076	.117 .319
Autumn	.004	.009	.014	.019	.029	.045	.071	.113	.151	.289 .469
SEASON Arithmetic Geometric Arithmetic Range N Number of Exceedances										
	Mean	Mean	Std Dev							
Winter	.088	.066	.076	.624	2120			n/a		
Spring	.046	.036	.050	.735	2192			n/a		
Summer	.033	.027	.024	.316	2191			n/a		
Autumn	.060	.046	.053	.465	2168			n/a		
-----BY MONTH-----										
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99% MAX
Jan	.008	.011	.020	.025	.038	.066	.120	.202	.262	.389 .632
Feb	.008	.012	.023	.027	.038	.061	.109	.176	.238	.356 .452
Mar	.010	.012	.018	.021	.031	.045	.066	.108	.189	.486 .741
Apr	.006	.008	.013	.016	.022	.032	.045	.066	.097	.161 .217
May	.006	.010	.013	.014	.020	.032	.045	.061	.073	.111 .122
Jun	.005	.007	.011	.013	.018	.028	.038	.053	.065	.114 .200
Jul	.004	.007	.010	.012	.017	.026	.037	.053	.067	.093 .145
Aug	.003	.006	.010	.014	.020	.028	.045	.071	.092	.137 .319
Sep	.004	.007	.012	.015	.023	.035	.055	.077	.092	.144 .194
Oct	.006	.009	.014	.018	.029	.045	.072	.110	.142	.287 .449
Nov	.009	.015	.023	.028	.041	.057	.090	.155	.212	.377 .469
Dec	.009	.014	.022	.029	.043	.066	.102	.161	.210	.415 .563
MONTH Arithmetic Geometric Arithmetic Range N Number of Exceedances										
	Mean	Mean	Std Dev							
Jan	.093	.068	.082	.624	702			n/a		
Feb	.086	.065	.073	.443	691			n/a		
Mar	.064	.048	.077	.731	738			n/a		
Apr	.039	.032	.028	.211	715			n/a		
May	.035	.031	.020	.116	739			n/a		
Jun	.032	.027	.021	.195	716			n/a		
Jul	.030	.026	.018	.140	738			n/a		
Aug	.037	.030	.031	.316	737			n/a		
Sep	.042	.035	.027	.190	716			n/a		
Oct	.058	.045	.048	.442	739			n/a		
Nov	.079	.062	.067	.460	713			n/a		
Dec	.085	.067	.072	.554	727			n/a		
-----BY YEAR-----										
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99% MAX
1996	.003	.009	.013	.017	.025	.040	.065	.113	.157	.307 .741
YEAR Arithmetic Geometric Arithmetic Range N Number of Exceedances										
	Mean	Mean	Std Dev							
1996	.056	.042	.057	.738	8671			n/a		

n/a - not applicable

\* - no data



NO<sub>x</sub> Summary Statistics for 1996  
 Calgary Northwest Monitoring Station  
 Units are PPM (parts per million)

No guidelines										
--BY SEASON--										
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99% MAX
Winter	.001	.003	.007	.011	.018	.031	.054	.092	.134	.237 .412
Spring	.001	.003	.004	.005	.008	.013	.021	.035	.048	.123 .277
Summer	.001	.003	.004	.004	.006	.011	.018	.026	.034	.056 .146
Autumn	.002	.003	.005	.006	.011	.020	.036	.058	.079	.157 .301
SEASON Arithmetic Geometric Arithmetic Range N Number of Exceedances										
	Mean	Mean	Std Dev							
Winter	.045	.031	.046	.411	2170				n/a	
Spring	.019	.013	.022	.276	2115				n/a	
Summer	.014	.011	.011	.145	2196				n/a	
Autumn	.029	.020	.029	.299	2167				n/a	
--BY MONTH--										
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99% MAX
Jan	.001	.003	.007	.011	.017	.030	.060	.104	.146	.262 .364
Feb	.002	.003	.006	.008	.015	.027	.049	.093	.133	.233 .394
Mar	.004	.005	.006	.008	.012	.019	.032	.053	.080	.201 .277
Apr	.002	.003	.004	.004	.007	.012	.018	.028	.037	.084 .176
May	.001	.002	.004	.005	.007	.012	.018	.025	.031	.050 .083
Jun	.001	.002	.003	.004	.006	.010	.016	.025	.034	.053 .059
Jul	.002	.003	.003	.004	.006	.010	.015	.024	.031	.049 .070
Aug	.002	.003	.004	.005	.008	.012	.021	.029	.036	.073 .146
Sep	.002	.002	.004	.005	.008	.015	.025	.037	.046	.074 .111
Oct	.002	.003	.004	.005	.010	.019	.035	.055	.078	.155 .301
Nov	.004	.006	.009	.011	.017	.029	.050	.078	.103	.210 .257
Dec	.003	.004	.009	.013	.022	.036	.052	.082	.109	.234 .412
MONTH Arithmetic Geometric Arithmetic Range N Number of Exceedances										
	Mean	Mean	Std Dev							
Jan	.047	.031	.049	.363	740				n/a	
Feb	.041	.027	.045	.392	691				n/a	
Mar	.028	.020	.033	.273	662				n/a	
Apr	.015	.011	.015	.174	715				n/a	
May	.014	.011	.010	.082	738				n/a	
Jun	.013	.010	.010	.058	716				n/a	
Jul	.013	.010	.010	.068	740				n/a	
Aug	.016	.013	.013	.144	740				n/a	
Sep	.019	.014	.014	.109	714				n/a	
Oct	.027	.018	.028	.299	737				n/a	
Nov	.040	.030	.036	.252	716				n/a	
Dec	.045	.034	.044	.409	739				n/a	
--BY YEAR--										
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99% MAX
1996	.001	.003	.004	.005	.009	.017	.031	.055	.079	.175 .412
YEAR Arithmetic Geometric Arithmetic Range N Number of Exceedances										
	Mean	Mean	Std Dev							
1996	.026	.017	.032	.411	8648				n/a	

n/a - not applicable

\* - no data

NO<sub>x</sub> Summary Statistics for 1996  
Calgary East Monitoring Station  
Units are PPM (parts per million)

No guidelines											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.003	.008	.014	.019	.033	.080	.167	.283	.388	.567	1.051
Spring	.002	.004	.008	.010	.017	.031	.056	.106	.155	.320	.814
Summer	.002	.003	.005	.008	.015	.029	.047	.075	.101	.175	.269
Autumn	.002	.004	.008	.012	.024	.047	.094	.163	.239	.451	.760
-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Winter	.122	.075	.124	1.048	2169	n/a					
Spring	.050	.032	.064	.812	2181	n/a					
Summer	.037	.026	.033	.267	2149	n/a					
Autumn	.074	.046	.084	.758	2169	n/a					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.003	.007	.013	.017	.030	.077	.162	.244	.326	.558	1.051
Feb	.005	.007	.014	.019	.033	.083	.181	.315	.432	.558	.698
Mar	.007	.008	.011	.015	.023	.042	.089	.164	.263	.490	.814
Apr	.002	.003	.006	.008	.014	.026	.051	.093	.130	.266	.351
May	.003	.004	.008	.010	.016	.028	.043	.068	.086	.146	.228
Jun	.002	.003	.006	.008	.013	.024	.043	.072	.094	.177	.198
Jul	.002	.003	.005	.008	.015	.026	.043	.068	.091	.139	.196
Aug	.002	.003	.006	.009	.019	.036	.056	.086	.115	.197	.269
Sep	.002	.003	.006	.009	.020	.039	.067	.104	.126	.212	.288
Oct	.003	.004	.007	.010	.022	.050	.093	.166	.240	.457	.760
Nov	.006	.009	.014	.018	.029	.061	.125	.228	.336	.520	.679
Dec	.006	.011	.018	.022	.035	.082	.162	.284	.383	.573	.775
-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Jan	.113	.069	.119	1.048	740	n/a					
Feb	.130	.079	.131	.693	690	n/a					
Mar	.074	.046	.092	.807	739	n/a					
Apr	.042	.027	.047	.349	715	n/a					
May	.035	.027	.028	.225	727	n/a					
Jun	.033	.024	.031	.196	713	n/a					
Jul	.034	.024	.028	.194	699	n/a					
Aug	.044	.032	.037	.267	737	n/a					
Sep	.050	.035	.043	.286	714	n/a					
Oct	.075	.045	.084	.757	740	n/a					
Nov	.098	.061	.106	.673	715	n/a					
Dec	.122	.078	.122	.769	739	n/a					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.002	.004	.008	.011	.021	.039	.083	.167	.245	.458	1.051
-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
1996	.071	.041	.089	1.049	8668	n/a					

n/a - not applicable

\* - no data

NO<sub>x</sub> Summary Statistics for 1996  
Fort Saskatchewan Monitoring Station  
Units are PPM (parts per million)

No guidelines											
-----											
--BY SEASON--											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.002	.004	.006	.009	.015	.035	.087	.149	.181	.255	.363
Spring	.002	.003	.004	.004	.006	.011	.020	.039	.058	.105	.271
Summer	.001	.002	.003	.003	.004	.007	.013	.024	.034	.057	.108
Autumn	.001	.002	.003	.004	.007	.013	.031	.075	.119	.183	.331
-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Winter	.059	.035	.060	.361	2166	n/a					
Spring	.018	.012	.021	.269	2192	n/a					
Summer	.011	.008	.012	.107	2192	n/a					
Autumn	.028	.015	.039	.330	2167	n/a					
-----											
--BY MONTH--											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.003	.005	.008	.010	.016	.039	.094	.159	.188	.271	.363
Feb	.003	.004	.006	.008	.015	.038	.081	.127	.163	.230	.302
Mar	.002	.003	.004	.005	.008	.014	.032	.064	.090	.132	.271
Apr	.002	.003	.003	.004	.006	.010	.018	.032	.046	.083	.116
May	.002	.003	.004	.004	.006	.010	.015	.026	.033	.052	.098
Jun	.001	.002	.003	.004	.005	.007	.013	.024	.034	.057	.108
Jul	.001	.002	.003	.003	.004	.006	.011	.018	.026	.046	.069
Aug	.001	.002	.003	.004	.004	.008	.016	.031	.040	.071	.103
Sep	.001	.001	.002	.003	.005	.008	.014	.026	.037	.068	.114
Oct	.001	.002	.004	.004	.007	.014	.032	.057	.077	.115	.172
Nov	.002	.004	.006	.007	.010	.020	.071	.135	.170	.224	.331
Dec	.002	.003	.005	.007	.013	.028	.087	.160	.183	.273	.335
-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Jan	.064	.039	.063	.360	735	n/a					
Feb	.056	.035	.052	.299	691	n/a					
Mar	.026	.016	.030	.269	737	n/a					
Apr	.015	.011	.015	.114	715	n/a					
May	.013	.010	.010	.096	740	n/a					
Jun	.011	.008	.012	.107	714	n/a					
Jul	.009	.007	.008	.068	739	n/a					
Aug	.013	.009	.014	.102	739	n/a					
Sep	.012	.008	.013	.113	715	n/a					
Oct	.024	.015	.026	.171	738	n/a					
Nov	.048	.026	.056	.329	714	n/a					
Dec	.058	.032	.063	.333	740	n/a					
-----											
--BY YEAR--											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.001	.002	.003	.004	.006	.012	.030	.079	.122	.198	.363
-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
1996	.029	.015	.042	.362	8717	n/a					
-----											
n/a - not applicable				* - no data							

n/a - not applicable

\* - no data

NO<sub>x</sub> Summary Statistics for 1996  
Fort McMurray Monitoring Station  
Units are PPM (parts per million)

No guidelines											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.000	.001	.002	.004	.009	.020	.037	.066	.087	.155	.312
Spring	.000	.001	.001	.002	.003	.006	.012	.023	.034	.060	.142
Summer	.000	.001	.001	.002	.003	.005	.010	.017	.022	.034	.055
Autumn	.000	.000	.001	.002	.004	.008	.018	.031	.042	.091	.209
-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Winter	.029	.017	.031	.312	2062	n/a					
Spring	.010	.006	.013	.142	2200	n/a					
Summer	.008	.005	.007	.055	2196	n/a					
Autumn	.014	.007	.018	.209	1361	n/a					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.000	.001	.001	.002	.009	.022	.041	.074	.090	.144	.312
Feb	.000	.001	.002	.003	.009	.020	.039	.074	.111	.211	.263
Mar	.001	.001	.001	.002	.004	.009	.020	.034	.048	.089	.142
Apr	.001	.001	.001	.002	.003	.006	.012	.020	.027	.050	.098
May	.000	.001	.001	.001	.003	.005	.008	.015	.022	.035	.041
Jun	.001	.001	.001	.001	.002	.004	.008	.013	.018	.027	.040
Jul	.001	.001	.002	.002	.003	.005	.009	.015	.020	.032	.042
Aug	.000	.001	.001	.002	.003	.006	.013	.021	.028	.039	.055
Sep	.000	.000	.001	.001	.003	.006	.013	.022	.031	.046	.069
Oct	.004	.004	.005	.007	.016	.040	.057	.098	.110	.042	.111
Nov	.001	.001	.002	.002	.005	.011	.021	.035	.048	.118	.209
Dec	.001	.001	.002	.005	.010	.019	.033	.055	.071	.092	.152
-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Jan	.031	.017	.032	.312	628	n/a					
Feb	.032	.018	.038	.263	692	n/a					
Mar	.015	.008	.017	.141	741	n/a					
Apr	.009	.006	.010	.097	718	n/a					
May	.007	.004	.007	.041	741	n/a					
Jun	.006	.004	.006	.039	720	n/a					
Jul	.007	.005	.006	.041	742	n/a					
Aug	.009	.006	.009	.055	734	n/a					
Sep	.010	.005	.010	.069	717	n/a					
Oct	.043	.031	.032	.107	37	n/a					
Nov	.017	.010	.021	.208	607	n/a					
Dec	.025	.017	.021	.151	742	n/a					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.000	.001	.001	.002	.004	.008	.018	.035	.053	.102	.312
-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
1996	.015	.008	.021	.312	7819	n/a					
-----											
n/a - not applicable				* - no data							

n/a - not applicable

\* - no data

NO<sub>x</sub> Summary Statistics for 1996  
 Royal Park Monitoring Station (Vegreville)  
 Units are PPM (parts per million)

No guidelines											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.000	.000	.002	.003	.010	.015	.023	.032	.039	.058	.117
Spring	.000	.000	.000	.000	.000	.001	.004	.012	.017	.026	.049
Summer	.000	.000	.000	.001	.001	.002	.003	.006	.009	.014	.039
Autumn	.000	.000	.000	.000	.001	.003	.006	.013	.018	.032	.055
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Winter	.017	.010	.013	.117	2165	n/a					
Spring	.004	.000	.006	.049	2112	n/a					
Summer	.003	.001	.003	.039	2173	n/a					
Autumn	.005	.002	.007	.055	2142	n/a					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.009	.009	.010	.011	.013	.017	.023	.033	.043	.065	.117
Feb	.008	.008	.009	.009	.012	.019	.024	.031	.036	.043	.062
Mar	.000	.000	.000	.000	.001	.006	.013	.019	.023	.030	.049
Apr	.000	.000	.000	.000	.000	.000	.001	.003	.003	.007	.011
May	.000	.000	.000	.000	.000	.002	.003	.005	.008	.015	.036
Jun	.000	.000	.000	.000	.001	.002	.004	.007	.009	.014	.033
Jul	.000	.000	.000	.001	.001	.002	.003	.005	.007	.013	.017
Aug	.000	.000	.000	.001	.001	.002	.004	.007	.010	.016	.039
Sep	.000	.000	.000	.000	.001	.002	.003	.005	.009	.020	.032
Oct	.000	.000	.001	.001	.002	.004	.007	.011	.015	.023	.032
Nov	.000	.000	.000	.000	.001	.003	.011	.019	.027	.044	.055
Dec	.000	.000	.000	.001	.002	.006	.018	.032	.040	.065	.105
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Jan	.020	.018	.012	.108	741	n/a					
Feb	.020	.018	.008	.054	682	n/a					
Mar	.008	.001	.008	.049	670	n/a					
Apr	.001	.000	.001	.011	712	n/a					
May	.002	.000	.003	.036	730	n/a					
Jun	.003	.001	.003	.033	693	n/a					
Jul	.002	.001	.002	.017	741	n/a					
Aug	.003	.002	.003	.039	739	n/a					
Sep	.003	.001	.003	.032	715	n/a					
Oct	.005	.003	.005	.032	713	n/a					
Nov	.007	.001	.009	.055	714	n/a					
Dec	.012	.003	.014	.105	742	n/a					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.000	.000	.000	.000	.001	.003	.011	.020	.027	.042	.117
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
1996	.007	.001	.010	.117	8592	n/a					
n/a - not applicable											

n/a - not applicable

\* - no data



Annual Average Concentration									
Year: 1996									
Pollutant: NO <sub>x</sub> [ppm]									
Year	EDMU	ERMU	EIMU	CDMU	CRMU	CIMU	Fort Sask.	Fort McMurray	Royal Park
1976	**	**	**	**	**	**	*	**	*
1977	**	**	**	**	**	**	*	*	*
1978	**	**	**	**	**	**	*	*	*
1979	**	**	**	**	**	**	*	**a	*
1980	**	**	**	**	**	**	*	b	*
1981	**	**	**	**	**	**	b	**	*
1982	**	**	**	**	**	**	**	**	*
1983	**	**	**	**	**	**	**	**	*
1984	**	**	**	**	**	**	**	**a	*
1985	**	**	**	**	**	**	**	**a	*
1986	**	**	**	**	**	**	**	**	*
1987	0.071	0.066	0.032	0.070	0.032	0.076	0.030	0.020	*
1988	0.063	0.055	0.032	0.075	0.032	0.082	0.026	0.019	*
1989	0.061	0.054	0.032	0.067	0.031	0.075	0.020a	0.018	*
1990	0.060	0.062	0.038	0.062	0.027	0.070	0.025	0.022	*
1991	0.062	0.067	0.044	0.071	0.030	0.076	0.025	0.019	*
1992	0.057	0.058	0.040	0.063	0.029	0.074	0.020	0.019	*
1993	0.056	0.056	0.030	0.060	0.026	0.073	0.027	0.012	*
1994	0.056	0.057	0.032	0.059	0.028	0.073	0.028	0.016	0.013
1995	0.055	0.046	0.032	0.060	0.030	0.073	0.029	0.015	0.014
1996	0.050	0.051	0.035	0.056	0.026	0.071	0.029	0.015	0.007

a 50% to 75% of data available

b less than 50% of data available

\*\* annual average not calculated

\* no data available

O<sub>3</sub> Summary Statistics for 1996  
Edmonton Central Monitoring Station  
Units are PPM (parts per million)

Ambient 1-hour average guideline = .082 PPM											
Ambient 24-hour average guideline = .025 PPM											
BY SEASON											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.000	.002	.003	.004	.006	.011	.017	.023	.026	.032	.038
Spring	.001	.002	.004	.006	.013	.021	.028	.034	.037	.044	.055
Summer	.000	.001	.002	.005	.011	.018	.027	.035	.041	.051	.068
Autumn	.000	.001	.002	.003	.005	.010	.016	.021	.025	.030	.037
SEASON Arithmetic Geometric Arithmetic Range N Number of Exceedances											
	Mean	Mean	Std Dev				1 hour	24 hour			
Winter	.012	.010	.007	.038	2176		0 (0.00%)	2 (2.20%)			
Spring	.021	.017	.010	.054	2201		0 (0.00%)	18 (19.57%)			
Summer	.019	.014	.012	.068	2208		0 (0.00%)	18 (19.57%)			
Autumn	.011	.008	.007	.037	2172		0 (0.00%)	0 (0.00%)			
BY MONTH											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.000	.001	.004	.005	.008	.012	.018	.024	.028	.034	.038
Feb	.001	.001	.002	.003	.006	.011	.017	.022	.025	.029	.032
Mar	.001	.002	.004	.005	.012	.020	.026	.032	.034	.038	.044
Apr	.001	.001	.004	.006	.014	.022	.029	.033	.037	.043	.046
May	.001	.002	.004	.007	.014	.021	.029	.037	.040	.049	.055
Jun	.000	.001	.003	.007	.014	.021	.031	.039	.044	.050	.056
Jul	.000	.001	.003	.005	.010	.017	.023	.031	.035	.043	.047
Aug	.000	.001	.002	.004	.009	.016	.026	.034	.040	.054	.068
Sep	.000	.001	.001	.002	.006	.011	.018	.024	.028	.033	.037
Oct	.001	.001	.002	.002	.004	.009	.015	.021	.024	.028	.031
Nov	.002	.002	.003	.004	.006	.010	.014	.019	.021	.024	.029
Dec	.002	.003	.004	.004	.006	.010	.017	.022	.025	.033	.037
MONTH Arithmetic Geometric Arithmetic Range N Number of Exceedances											
	Mean	Mean	Std Dev				1 hour	24 hour			
Jan	.013	.010	.007	.038	742		0 (0.00%)	1 (3.23%)			
Feb	.012	.009	.007	.031	693		0 (0.00%)	0 (0.00%)			
Mar	.019	.016	.009	.043	741		0 (0.00%)	4 (12.90%)			
Apr	.021	.018	.010	.045	718		0 (0.00%)	5 (16.67%)			
May	.022	.018	.011	.054	742		0 (0.00%)	9 (29.03%)			
Jun	.023	.017	.012	.056	720		0 (0.00%)	11 (36.67%)			
Jul	.018	.014	.010	.047	744		0 (0.00%)	6 (19.35%)			
Aug	.018	.012	.012	.068	744		0 (0.00%)	1 (3.23%)			
Sep	.012	.008	.008	.037	716		0 (0.00%)	0 (0.00%)			
Oct	.010	.008	.007	.030	736		0 (0.00%)	0 (0.00%)			
Nov	.011	.009	.006	.027	720		0 (0.00%)	0 (0.00%)			
Dec	.012	.010	.007	.035	741		0 (0.00%)	1 (3.23%)			
BY YEAR											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.000	.001	.003	.004	.008	.014	.022	.030	.035	.044	.068
YEAR Arithmetic Geometric Arithmetic Range N Number of Exceedances											
	Mean	Mean	Std Dev				1 hour	24 hour			
1996	.016	.012	.010	.068	8757		0 (0.00%)	38 (10.38%)			
n/a - not applicable * - no data											

n/a - not applicable

\* - no data

O<sub>3</sub> Summary Statistics for 1996  
Edmonton Northwest Monitoring Station  
Units are PPM (parts per million)

Ambient 1-hour average guideline = .082 PPM											
Ambient 24-hour average guideline = .025 PPM											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.000	.000	.000	.000	.000	.005	.017	.024	.028	.039	.045
Spring	.000	.000	.000	.002	.010	.020	.027	.033	.037	.045	.053
Summer	.000	.000	.000	.002	.010	.019	.028	.038	.044	.053	.084
Autumn	.000	.000	.000	.000	.002	.009	.018	.025	.028	.033	.041
-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
Winter	.009	.001	.010	.045	2182	0 (0.00%)	3 (3.30%)				
Spring	.019	.008	.011	.053	2200	0 (0.00%)	14 (15.22%)				
Summer	.020	.010	.013	.084	2204	2 (0.09%)	20 (21.74%)				
Autumn	.011	.002	.009	.041	2172	0 (0.00%)	1 (1.10%)				
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.000	.000	.000	.000	.000	.004	.016	.022	.025	.027	.028
Feb	.000	.000	.000	.000	.000	.004	.016	.022	.026	.031	.034
Mar	.000	.000	.000	.000	.007	.019	.024	.028	.030	.032	.032
Apr	.000	.000	.000	.002	.008	.019	.027	.033	.035	.040	.043
May	.000	.000	.001	.005	.013	.022	.030	.038	.042	.048	.053
Jun	.000	.000	.000	.002	.013	.022	.031	.041	.046	.054	.060
Jul	.000	.000	.001	.003	.011	.018	.027	.035	.040	.047	.050
Aug	.000	.000	.000	.001	.007	.017	.027	.038	.046	.064	.084
Sep	.000	.000	.000	.001	.005	.012	.020	.025	.029	.036	.041
Oct	.000	.000	.000	.000	.001	.007	.016	.025	.029	.034	.036
Nov	.000	.000	.000	.000	.001	.007	.016	.023	.027	.031	.033
Dec	.000	.000	.000	.000	.000	.006	.019	.031	.036	.043	.045
-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
Jan	.008	.000	.009	.028	744	0 (0.00%)	0 (0.00%)				
Feb	.008	.000	.009	.034	694	0 (0.00%)	0 (0.00%)				
Mar	.016	.005	.010	.032	741	0 (0.00%)	3 (9.68%)				
Apr	.018	.008	.011	.043	717	0 (0.00%)	3 (10.00%)				
May	.022	.013	.012	.053	742	0 (0.00%)	8 (25.81%)				
Jun	.022	.011	.013	.060	718	0 (0.00%)	11 (36.67%)				
Jul	.019	.011	.011	.050	742	0 (0.00%)	4 (12.90%)				
Aug	.019	.008	.014	.084	744	2 (0.27%)	5 (16.13%)				
Sep	.013	.005	.009	.041	716	0 (0.00%)	0 (0.00%)				
Oct	.010	.002	.010	.036	739	0 (0.00%)	0 (0.00%)				
Nov	.009	.001	.009	.033	717	0 (0.00%)	1 (3.33%)				
Dec	.011	.001	.012	.045	744	0 (0.00%)	3 (9.68%)				
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.000	.000	.000	.000	.003	.014	.023	.031	.036	.046	.084
-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
1996	.015	.003	.012	.084	8758	2 (0.02%)	38 (10.38%)				
-----											

n/a - not applicable

\* - no data

Wind Summary for 1996  
Edmonton Northwest Monitoring Station

\*\* calculation is for exceedances of the 1-hour guideline for O<sub>3</sub> \*\*

Joint Wind Direction and Speed Frequency Distribution (no. of hours)										
Dir	Wind Speed (km/h)								TOTAL	
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	>40	
N	0	0	0	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0	0	0	0
E	0	1	0	0	0	0	0	0	0	1
ESE	0	0	1	0	0	0	0	0	0	1
SE	0	0	0	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0	0	0	0
TOTAL	0	1	1	0	0	0	0	0	0	2
CALM = 0 hours										
MISSING DATA = 0 hours										

Joint Wind Direction and Speed Frequency Distribution (percent)										
Dir	Wind Speed (km/h)								TOTAL	
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	>40	
N	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NNE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
ENE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
E	.0	50.0	.0	.0	.0	.0	.0	.0	.0	50.0
ESE	.0	.0	50.0	.0	.0	.0	.0	.0	.0	50.0
SE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
SSE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
S	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
SSW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
SW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
WSW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
W	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
WNW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NNW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
TOTAL	.0	50.0	50.0	.0	.0	.0	.0	.0	.0	100.0
CALM = .00%										
MISSING DATA = .00%										

Wind Summary for 1996  
Edmonton Northwest Monitoring Station

\*\* calculation is for exceedances of the 24-hour guideline for O<sub>3</sub> \*\*

Joint Wind Direction and Speed Frequency Distribution (no. of hours)										
	Wind Speed (km/h)									
Dir	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	>40	TOTAL
N	12	21	15	5	0	0	0	0	0	53
NNE	4	26	15	16	0	0	0	0	0	61
NE	5	41	20	7	0	0	0	0	0	73
ENE	3	17	11	2	1	0	0	0	0	34
E	3	18	7	1	8	0	0	0	0	37
ESE	2	28	20	17	4	0	0	0	0	71
SE	5	23	35	16	13	1	0	0	0	93
SSE	1	9	10	22	10	0	0	0	0	52
S	3	5	9	5	2	0	0	0	0	24
SSW	3	7	3	0	0	0	0	0	0	13
SW	7	1	2	0	0	0	0	0	0	10
WSW	1	11	6	0	0	0	0	0	0	18
W	5	29	27	6	2	0	0	0	0	69
WNW	7	35	32	27	7	0	0	0	0	108
NW	6	37	49	19	4	0	0	0	0	115
NNW	10	20	34	15	2	0	0	0	0	81
TOTAL	77	328	295	158	53	1	0	0	0	912

CALM = 0 hours

MISSING DATA = 0 hours

Joint Wind Direction and Speed Frequency Distribution (percent)										
	Wind Speed (km/h)									
Dir	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	>40	TOTAL
N	1.3	2.3	1.6	.5	.0	.0	.0	.0	.0	5.8
NNE	.4	2.9	1.6	1.8	.0	.0	.0	.0	.0	6.7
NE	.5	4.5	2.2	.8	.0	.0	.0	.0	.0	8.0
ENE	.3	1.9	1.2	.2	.1	.0	.0	.0	.0	3.7
E	.3	2.0	.8	.1	.9	.0	.0	.0	.0	4.1
ESE	.2	3.1	2.2	1.9	.4	.0	.0	.0	.0	7.8
SE	.5	2.5	3.8	1.8	1.4	.1	.0	.0	.0	10.2
SSE	.1	1.0	1.1	2.4	1.1	.0	.0	.0	.0	5.7
S	.3	.5	1.0	.5	.2	.0	.0	.0	.0	2.6
SSW	.3	.8	.3	.0	.0	.0	.0	.0	.0	1.4
SW	.8	.1	.2	.0	.0	.0	.0	.0	.0	1.1
WSW	.1	1.2	.7	.0	.0	.0	.0	.0	.0	2.0
W	.5	3.2	3.0	.7	.2	.0	.0	.0	.0	7.6
WNW	.8	3.8	3.5	3.0	.8	.0	.0	.0	.0	11.8
NW	.7	4.1	5.4	2.1	.4	.0	.0	.0	.0	12.6
NNW	1.1	2.2	3.7	1.6	.2	.0	.0	.0	.0	8.9
TOTAL	8.4	36.0	32.3	17.3	5.8	.1	.0	.0	.0	100.0

CALM = .00%

MISSING DATA = .00%



O<sub>3</sub> Summary Statistics for 1996  
Edmonton East Monitoring Station  
Units are PPM (parts per million)

Ambient 1-hour average guideline = .082 PPM											
Ambient 24-hour average guideline = .025 PPM											
-----											
--BY SEASON--											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.000	.001	.002	.003	.006	.014	.023	.029	.031	.036	.043
Spring	.001	.002	.006	.012	.022	.031	.039	.045	.047	.052	.058
Summer	.000	.001	.003	.007	.015	.024	.033	.043	.048	.059	.076
Autumn	.000	.002	.002	.003	.008	.016	.024	.028	.031	.039	.049
-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
Winter	.015	.011	.010	.043	2146	0(0.00%)	7(7.87%)				
Spring	.030	.026	.012	.057	2197	0(0.00%)	66(71.74%)				
Summer	.025	.018	.014	.076	2194	0(0.00%)	39(42.39%)				
Autumn	.016	.013	.010	.049	2164	0(0.00%)	7(7.69%)				
-----											
--BY MONTH--											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.001	.001	.002	.003	.006	.012	.021	.027	.030	.034	.036
Feb	.000	.001	.002	.003	.007	.017	.026	.032	.034	.039	.043
Mar	.001	.002	.004	.008	.022	.031	.038	.042	.045	.047	.050
Apr	.003	.005	.009	.014	.023	.034	.042	.046	.049	.053	.056
May	.001	.002	.007	.012	.022	.030	.038	.045	.048	.054	.058
Jun	.000	.001	.003	.008	.019	.028	.037	.045	.049	.056	.057
Jul	.000	.001	.004	.007	.014	.022	.030	.039	.043	.052	.059
Aug	.000	.001	.002	.006	.012	.022	.033	.044	.051	.070	.076
Sep	.001	.002	.003	.005	.010	.018	.025	.031	.036	.044	.049
Oct	.000	.002	.002	.003	.006	.014	.023	.028	.031	.036	.039
Nov	.001	.002	.003	.003	.007	.016	.024	.028	.029	.031	.033
Dec	.000	.001	.002	.003	.005	.013	.023	.028	.030	.033	.041
-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
Jan	.014	.010	.009	.035	739	0(0.00%)	2(6.45%)				
Feb	.017	.012	.011	.043	665	0(0.00%)	3(11.11%)				
Mar	.029	.024	.012	.049	743	0(0.00%)	20(64.52%)				
Apr	.032	.029	.012	.053	717	0(0.00%)	25(83.33%)				
May	.030	.026	.012	.057	737	0(0.00%)	21(67.74%)				
Jun	.028	.022	.013	.057	717	0(0.00%)	19(63.33%)				
Jul	.022	.017	.012	.059	742	0(0.00%)	8(25.81%)				
Aug	.024	.017	.015	.076	735	0(0.00%)	12(38.71%)				
Sep	.018	.015	.010	.048	713	0(0.00%)	4(13.33%)				
Oct	.015	.011	.009	.039	737	0(0.00%)	0(0.00%)				
Nov	.016	.012	.009	.032	714	0(0.00%)	3(10.00%)				
Dec	.014	.010	.010	.041	742	0(0.00%)	2(6.45%)				
-----											
--BY YEAR--											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.000	.001	.003	.004	.011	.021	.030	.040	.044	.052	.076
-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
1996	.022	.016	.013	.076	8701	0(0.00%)	119(32.69%)				
-----											
n/a - not applicable											

n/a - not applicable

\* - no data

Wind Summary for 1996  
Edmonton East Monitoring Station

\*\* calculation is for exceedances of the 24-hour guideline for O<sub>3</sub> \*\*

Joint Wind Direction and Speed Frequency Distribution (no. of hours)

		Wind Speed (km/h)								TOTAL
Dir	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	>40	
N	20	43	49	47	16	4	0	0	0	179
NNE	26	34	63	18	7	1	0	0	0	149
NE	35	47	36	34	1	0	0	0	0	153
ENE	11	23	25	4	3	1	0	0	0	67
E	17	34	31	13	16	3	0	0	0	114
ESE	30	76	67	30	18	7	0	0	0	228
SE	21	60	97	76	46	20	10	1	0	331
SSE	32	61	113	92	53	25	13	3	0	392
S	16	66	69	62	31	18	1	0	0	263
SSW	20	59	75	23	9	1	0	0	0	187
SW	15	25	35	4	0	0	0	0	0	79
WSW	6	15	8	3	1	0	0	0	0	33
W	9	19	15	11	4	0	1	0	0	59
WNW	18	41	52	34	29	9	5	0	0	188
NW	16	46	42	54	30	15	3	4	4	214
NNW	22	42	65	59	21	6	2	2	0	219
TOTAL	314	691	842	564	285	110	35	10	4	2855

CALM = 1 hours

MISSING DATA = 0 hours

Joint Wind Direction and Speed Frequency Distribution (percent)

		Wind Speed (km/h)								TOTAL
Dir	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	>40	
N	.7	1.5	1.7	1.6	.6	.1	.0	.0	.0	6.3
NNE	.9	1.2	2.2	.6	.2	.0	.0	.0	.0	5.2
NE	1.2	1.6	1.3	1.2	.0	.0	.0	.0	.0	5.4
ENE	.4	.8	.9	.1	.1	.0	.0	.0	.0	2.3
E	.6	1.2	1.1	.5	.6	.1	.0	.0	.0	4.0
ESE	1.1	2.7	2.3	1.1	.6	.2	.0	.0	.0	8.0
SE	.7	2.1	3.4	2.7	1.6	.7	.4	.0	.0	11.6
SSE	1.1	2.1	4.0	3.2	1.9	.9	.5	.1	.0	13.7
S	.6	2.3	2.4	2.2	1.1	.6	.0	.0	.0	9.2
SSW	.7	2.1	2.6	.8	.3	.0	.0	.0	.0	6.5
SW	.5	.9	1.2	.1	.0	.0	.0	.0	.0	2.8
WSW	.2	.5	.3	.1	.0	.0	.0	.0	.0	1.2
W	.3	.7	.5	.4	.1	.0	.0	.0	.0	2.1
WNW	.6	1.4	1.8	1.2	1.0	.3	.2	.0	.0	6.6
NW	.6	1.6	1.5	1.9	1.1	.5	.1	.1	.1	7.5
NNW	.8	1.5	2.3	2.1	.7	.2	.1	.1	.0	7.7
TOTAL	11.0	24.2	29.5	19.7	10.0	3.9	1.2	.4	.1	100.0

CALM = .04%

MISSING DATA = .00%

O<sub>3</sub> Summary Statistics for 1996  
 Calgary Central Monitoring Station  
 Units are PPM (parts per million)

-----											
Ambient 1-hour average guideline =						.082 PPM					
Ambient 24-hour average guideline =						.025 PPM					
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.000	.000	.000	.001	.002	.006	.013	.020	.024	.031	.035
Spring	.000	.001	.002	.004	.009	.017	.024	.030	.034	.042	.046
Summer	.000	.000	.002	.004	.011	.019	.028	.036	.041	.048	.057
Autumn	.000	.000	.001	.001	.003	.007	.014	.022	.025	.032	.042
-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
Winter	.008	.003	.008	.035	2109	0(0.00%)	0(0.00%)				
Spring	.017	.012	.010	.046	2198	0(0.00%)	7(7.61%)				
Summer	.020	.013	.012	.057	2199	0(0.00%)	16(17.39%)				
Autumn	.009	.004	.008	.042	2175	0(0.00%)	0(0.00%)				
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.000	.000	.000	.001	.002	.006	.012	.019	.025	.031	.034
Feb	.000	.000	.000	.001	.002	.008	.017	.022	.024	.031	.035
Mar	.000	.001	.001	.002	.007	.015	.022	.027	.031	.035	.037
Apr	.000	.001	.002	.004	.010	.017	.025	.030	.032	.037	.039
May	.000	.001	.003	.006	.011	.018	.026	.034	.040	.045	.046
Jun	.000	.001	.003	.006	.012	.021	.031	.040	.045	.049	.057
Jul	.000	.000	.002	.004	.011	.018	.026	.033	.037	.043	.048
Aug	.000	.000	.001	.003	.009	.019	.029	.035	.041	.048	.052
Sep	.000	.000	.001	.001	.003	.009	.018	.025	.029	.036	.042
Oct	.000	.000	.000	.001	.003	.008	.016	.022	.025	.030	.033
Nov	.000	.000	.001	.001	.003	.006	.010	.015	.017	.021	.026
Dec	.000	.000	.000	.001	.002	.005	.011	.017	.022	.029	.033
-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
Jan	.008	.003	.007	.034	687	0(0.00%)	0(0.00%)				
Feb	.010	.003	.008	.035	694	0(0.00%)	0(0.00%)				
Mar	.015	.010	.009	.037	741	0(0.00%)	0(0.00%)				
Apr	.017	.012	.009	.039	716	0(0.00%)	1(3.33%)				
May	.019	.014	.011	.046	741	0(0.00%)	6(19.35%)				
Jun	.022	.017	.013	.057	718	0(0.00%)	12(40.00%)				
Jul	.019	.012	.011	.048	741	0(0.00%)	1(3.23%)				
Aug	.019	.012	.012	.052	740	0(0.00%)	3(9.68%)				
Sep	.011	.005	.009	.042	717	0(0.00%)	0(0.00%)				
Oct	.010	.004	.008	.033	741	0(0.00%)	0(0.00%)				
Nov	.007	.004	.005	.026	717	0(0.00%)	0(0.00%)				
Dec	.007	.003	.007	.033	728	0(0.00%)	0(0.00%)				
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.000	.000	.001	.001	.004	.012	.021	.029	.034	.043	.057
-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
1996	.014	.007	.011	.057	8681	0(0.00%)	23(6.37%)				
-----											

n/a - not applicable

\* - no data

O<sub>3</sub> Summary Statistics for 1996  
Calgary Northwest Monitoring Station  
Units are PPM (parts per million)

Ambient 1-hour average guideline = .082 PPM											
Ambient 24-hour average guideline = .025 PPM											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.000	.002	.003	.003	.007	.016	.025	.034	.038	.043	.049
Spring	.001	.002	.006	.011	.020	.030	.038	.046	.048	.052	.056
Summer	.001	.002	.005	.009	.018	.029	.041	.050	.054	.061	.077
Autumn	.000	.001	.002	.003	.006	.015	.025	.032	.036	.041	.049
-----BY SEASON-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
Winter	.017	.013	.011	.049	2177	0 (0.00%)	10 (10.99%)				
Spring	.029	.025	.013	.055	2195	0 (0.00%)	65 (70.65%)				
Summer	.029	.024	.015	.076	2199	0 (0.00%)	61 (66.30%)				
Autumn	.016	.010	.011	.049	2173	0 (0.00%)	8 (8.79%)				
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.002	.002	.004	.005	.009	.018	.025	.035	.040	.044	.049
Feb	.000	.001	.002	.003	.008	.019	.029	.037	.041	.043	.044
Mar	.001	.002	.004	.009	.016	.027	.036	.041	.044	.047	.048
Apr	.001	.002	.008	.013	.022	.033	.042	.047	.049	.052	.053
May	.001	.002	.008	.012	.021	.030	.037	.047	.050	.053	.056
Jun	.001	.002	.006	.012	.021	.031	.042	.051	.055	.059	.065
Jul	.001	.001	.004	.008	.018	.029	.039	.047	.050	.057	.066
Aug	.001	.001	.004	.008	.016	.028	.041	.051	.057	.065	.077
Sep	.000	.001	.002	.003	.007	.016	.027	.033	.038	.045	.049
Oct	.000	.001	.001	.002	.006	.017	.027	.035	.037	.040	.040
Nov	.000	.001	.002	.003	.006	.012	.019	.025	.028	.033	.038
Dec	.001	.002	.003	.003	.006	.013	.021	.029	.035	.039	.041
-----BY MONTH-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
Jan	.018	.015	.011	.047	742	0 (0.00%)	4 (12.90%)				
Feb	.019	.014	.012	.044	694	0 (0.00%)	3 (10.34%)				
Mar	.026	.022	.012	.047	742	0 (0.00%)	17 (54.84%)				
Apr	.031	.027	.013	.052	716	0 (0.00%)	25 (83.33%)				
May	.029	.026	.012	.055	737	0 (0.00%)	23 (74.19%)				
Jun	.031	.027	.014	.064	717	0 (0.00%)	20 (66.67%)				
Jul	.028	.023	.014	.065	741	0 (0.00%)	20 (64.52%)				
Aug	.029	.023	.016	.076	741	0 (0.00%)	21 (67.74%)				
Sep	.017	.012	.012	.049	716	0 (0.00%)	4 (13.33%)				
Oct	.018	.011	.012	.040	739	0 (0.00%)	4 (12.90%)				
Nov	.013	.009	.008	.038	718	0 (0.00%)	0 (0.00%)				
Dec	.015	.011	.010	.040	741	0 (0.00%)	3 (9.68%)				
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.000	.001	.003	.004	.011	.022	.033	.042	.047	.056	.077
-----BY YEAR-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
1996	.023	.017	.014	.077	8744	0 (0.00%)	144 (39.34%)				
-----BY YEAR-----											
n/a - not applicable											

n/a - not applicable

\* - no data

Wind Summary for 1996  
Calgary Northwest Monitoring Station

\*\* calculation is for exceedances of the 24-hour guideline for O<sub>3</sub> \*\*

Joint Wind Direction and Speed Frequency Distribution (no. of hours)										
Dir	Wind Speed (km/h)								>40	TOTAL
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40		
N	38	66	58	14	5	1	0	0	0	182
NNE	25	78	52	10	0	0	0	0	0	165
NE	29	46	18	0	0	0	0	0	0	93
ENE	42	41	3	0	0	0	0	0	0	86
E	48	76	2	0	0	0	0	0	0	126
ESE	54	74	8	0	0	0	0	0	0	136
SE	67	172	39	2	0	0	0	0	0	280
SSE	48	97	45	12	1	0	0	0	0	203
S	33	29	20	7	1	0	0	0	0	90
SSW	16	19	13	9	2	0	0	0	0	59
SW	21	20	13	9	2	1	1	0	0	67
WSW	15	19	13	10	8	4	1	0	0	70
W	49	72	70	58	52	30	9	1	0	341
WNW	163	522	161	56	8	2	2	0	0	914
NW	149	185	55	10	3	2	0	0	0	404
NNW	42	62	55	22	13	1	2	0	0	197
TOTAL	839	1578	625	219	95	41	15	1	0	3413
CALM = 43 hours										
MISSING DATA = 0 hours										
Joint Wind Direction and Speed Frequency Distribution (percent)										
Dir	Wind Speed (km/h)								>40	TOTAL
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40		
N	1.1	1.9	1.7	.4	.1	.0	.0	.0	.0	5.3
NNE	.7	2.3	1.5	.3	.0	.0	.0	.0	.0	4.8
NE	.8	1.3	.5	.0	.0	.0	.0	.0	.0	2.7
ENE	1.2	1.2	.1	.0	.0	.0	.0	.0	.0	2.5
E	1.4	2.2	.1	.0	.0	.0	.0	.0	.0	3.6
ESE	1.6	2.1	.2	.0	.0	.0	.0	.0	.0	3.9
SE	1.9	5.0	1.1	.1	.0	.0	.0	.0	.0	8.1
SSE	1.4	2.8	1.3	.3	.0	.0	.0	.0	.0	5.9
S	1.0	.8	.6	.2	.0	.0	.0	.0	.0	2.6
SSW	.5	.5	.4	.3	.1	.0	.0	.0	.0	1.7
SW	.6	.6	.4	.3	.1	.0	.0	.0	.0	1.9
WSW	.4	.5	.4	.3	.2	.1	.0	.0	.0	2.0
W	1.4	2.1	2.0	1.7	1.5	.9	.3	.0	.0	9.9
WNW	4.7	15.1	4.7	1.6	.2	.1	.1	.0	.0	26.4
NW	4.3	5.4	1.6	.3	.1	.1	.0	.0	.0	11.7
NNW	1.2	1.8	1.6	.6	.4	.0	.1	.0	.0	5.7
TOTAL	24.3	45.7	18.1	6.3	2.7	1.2	.4	.0	.0	98.8
CALM = 1.24%										
MISSING DATA = .00%										



O3 Summary Statistics for 1996  
Calgary East Monitoring Station  
Units are PPM (parts per million)

Ambient 1-hour average guideline = .082 PPM											
Ambient 24-hour average guideline = .025 PPM											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.000	.000	.000	.000	.001	.005	.015	.023	.028	.036	.040
Spring	.000	.000	.001	.002	.011	.023	.033	.040	.044	.049	.056
Summer	.000	.001	.002	.003	.011	.024	.034	.042	.047	.054	.063
Autumn	.000	.000	.001	.001	.002	.008	.019	.028	.032	.038	.047
-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
Winter	.009	.001	.010	.040	2175	0(0.00%)	0(0.00%)				
Spring	.022	.011	.014	.056	2191	0(0.00%)	30(32.61%)				
Summer	.024	.017	.014	.063	2162	0(0.00%)	31(34.44%)				
Autumn	.012	.005	.011	.047	2177	0(0.00%)	2(2.20%)				
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.000	.000	.000	.000	.001	.006	.015	.023	.030	.036	.040
Feb	.000	.000	.000	.000	.000	.006	.018	.027	.032	.036	.038
Mar	.000	.000	.000	.001	.007	.020	.030	.035	.039	.043	.046
Apr	.000	.000	.001	.002	.014	.025	.036	.042	.044	.048	.050
May	.000	.000	.002	.005	.013	.024	.033	.043	.046	.053	.056
Jun	.000	.001	.002	.004	.015	.026	.038	.047	.052	.060	.063
Jul	.001	.002	.002	.004	.010	.025	.033	.039	.042	.048	.056
Aug	.001	.001	.002	.002	.007	.021	.033	.040	.045	.053	.061
Sep	.000	.001	.001	.002	.004	.012	.023	.031	.035	.042	.047
Oct	.000	.000	.001	.001	.002	.008	.021	.031	.034	.037	.040
Nov	.000	.000	.000	.001	.001	.007	.013	.019	.023	.030	.035
Dec	.000	.000	.000	.000	.001	.002	.012	.019	.023	.028	.031
-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
Jan	.009	.001	.010	.040	741	0(0.00%)	0(0.00%)				
Feb	.010	.001	.011	.038	692	0(0.00%)	0(0.00%)				
Mar	.019	.006	.013	.046	742	0(0.00%)	5(16.13%)				
Apr	.025	.013	.014	.050	717	0(0.00%)	13(43.33%)				
May	.024	.016	.013	.056	732	0(0.00%)	12(38.71%)				
Jun	.027	.020	.015	.063	718	0(0.00%)	17(56.67%)				
Jul	.023	.017	.013	.055	702	0(0.00%)	7(24.14%)				
Aug	.021	.015	.014	.060	742	0(0.00%)	7(22.58%)				
Sep	.014	.008	.011	.047	717	0(0.00%)	1(3.33%)				
Oct	.012	.004	.011	.040	742	0(0.00%)	1(3.23%)				
Nov	.008	.003	.008	.035	718	0(0.00%)	0(0.00%)				
Dec	.007	.001	.008	.031	742	0(0.00%)	0(0.00%)				
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.000	.000	.000	.001	.003	.014	.027	.036	.041	.049	.063
-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
1996	.017	.005	.014	.063	8705	0(0.00%)	63(17.31%)				
-----											
n/a - not applicable											

n/a - not applicable

\* - no data

Wind Summary for 1996  
Calgary East Monitoring Station

\*\* calculation is for exceedances of the 24-hour guideline for O<sub>3</sub> \*\*

Joint Wind Direction and Speed Frequency Distribution (no. of hours)										
Dir	Wind Speed (km/h)								TOTAL	
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40		
N	7	43	42	29	11	3	0	0	0	135
NNE	16	29	34	8	1	0	0	0	0	88
NE	8	11	11	1	0	0	0	0	0	31
ENE	16	40	19	2	0	0	0	0	0	77
E	21	30	19	4	0	0	0	0	0	74
ESE	19	25	18	6	1	1	0	0	0	70
SE	14	21	13	3	1	4	2	0	0	58
SSE	11	27	6	8	1	1	0	0	0	54
S	22	9	3	6	4	1	0	0	0	45
SSW	22	10	11	2	0	0	0	0	0	45
SW	26	21	7	1	2	0	0	0	0	57
WSW	41	21	10	2	2	1	0	0	0	77
W	48	68	39	25	23	11	7	1	0	222
WNW	33	72	37	23	8	0	0	0	0	173
NW	19	48	51	19	4	0	0	0	0	141
NNW	10	51	60	30	3	0	0	0	0	154
TOTAL	333	526	380	169	61	22	9	1	0	1501
CALM = 11 hours										
MISSING DATA = 0 hours										
Joint Wind Direction and Speed Frequency Distribution (percent)										
Dir	Wind Speed (km/h)								TOTAL	
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40		
N	.5	2.8	2.8	1.9	.7	.2	.0	.0	.0	8.9
NNE	1.1	1.9	2.2	.5	.1	.0	.0	.0	.0	5.8
NE	.5	.7	.7	.1	.0	.0	.0	.0	.0	2.1
ENE	1.1	2.6	1.3	.1	.0	.0	.0	.0	.0	5.1
E	1.4	2.0	1.3	.3	.0	.0	.0	.0	.0	4.9
ESE	1.3	1.7	1.2	.4	.1	.1	.0	.0	.0	4.6
SE	.9	1.4	.9	.2	.1	.3	.1	.0	.0	3.8
SSE	.7	1.8	.4	.5	.1	.1	.0	.0	.0	3.6
S	1.5	.6	.2	.4	.3	.1	.0	.0	.0	3.0
SSW	1.5	.7	.7	.1	.0	.0	.0	.0	.0	3.0
SW	1.7	1.4	.5	.1	.1	.0	.0	.0	.0	3.8
WSW	2.7	1.4	.7	.1	.1	.1	.0	.0	.0	5.1
W	3.2	4.5	2.6	1.7	1.5	.7	.5	.1	.0	14.7
WNW	2.2	4.8	2.4	1.5	.5	.0	.0	.0	.0	11.4
NW	1.3	3.2	3.4	1.3	.3	.0	.0	.0	.0	9.3
NNW	.7	3.4	4.0	2.0	.2	.0	.0	.0	.0	10.2
TOTAL	22.0	34.8	25.1	11.2	4.0	1.5	.6	.1	.0	99.3
CALM = .73%										
MISSING DATA = .00%										

O<sub>3</sub> Summary Statistics for 1996  
Fort Saskatchewan Monitoring Station  
Units are PPM (parts per million)

Ambient 1-hour average guideline = .082 PPM											
Ambient 24-hour average guideline = .025 PPM											
-BY SEASON-											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.000	.001	.002	.002	.004	.017	.030	.037	.041	.046	.055
Spring	.002	.002	.007	.013	.025	.037	.046	.052	.055	.061	.072
Summer	.000	.002	.005	.010	.018	.027	.038	.049	.055	.069	.087
Autumn	.000	.002	.002	.002	.009	.020	.029	.035	.038	.046	.059
-BY SEASON-											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
Winter	.018	.010	.014	.055	2173	0(0.00%)	24(26.37%)				
Spring	.035	.030	.014	.070	2197	0(0.00%)	82(89.13%)				
Summer	.029	.023	.015	.087	2197	3(0.14%)	57(61.96%)				
Autumn	.019	.013	.012	.059	2174	0(0.00%)	18(19.78%)				
-BY MONTH-											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.001	.001	.001	.002	.003	.014	.029	.036	.040	.044	.045
Feb	.000	.000	.002	.002	.004	.019	.033	.042	.045	.051	.055
Mar	.002	.002	.003	.007	.026	.038	.046	.051	.053	.056	.058
Apr	.002	.003	.010	.016	.026	.036	.046	.050	.055	.060	.061
May	.002	.004	.009	.016	.025	.036	.047	.054	.058	.065	.072
Jun	.000	.001	.005	.012	.022	.034	.043	.053	.059	.066	.071
Jul	.001	.002	.008	.011	.018	.025	.033	.044	.049	.056	.069
Aug	.002	.002	.004	.006	.014	.024	.037	.048	.057	.078	.087
Sep	.000	.000	.003	.006	.013	.022	.030	.035	.040	.052	.059
Oct	.002	.002	.002	.003	.009	.018	.027	.036	.039	.043	.050
Nov	.000	.001	.002	.002	.005	.020	.029	.034	.035	.037	.040
Dec	.002	.002	.003	.003	.004	.017	.028	.034	.037	.039	.040
-BY MONTH-											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
Jan	.017	.010	.014	.044	737	0(0.00%)	6(19.35%)				
Feb	.020	.010	.015	.055	694	0(0.00%)	10(34.48%)				
Mar	.034	.027	.015	.056	739	0(0.00%)	23(74.19%)				
Apr	.035	.031	.013	.059	716	0(0.00%)	28(93.33%)				
May	.036	.031	.015	.070	742	0(0.00%)	31(100.00%)				
Jun	.033	.025	.015	.071	717	0(0.00%)	24(80.00%)				
Jul	.026	.023	.012	.068	740	0(0.00%)	15(48.39%)				
Aug	.027	.021	.017	.085	740	3(0.41%)	18(58.06%)				
Sep	.022	.015	.011	.059	717	0(0.00%)	7(23.33%)				
Oct	.019	.014	.012	.048	740	0(0.00%)	4(12.90%)				
Nov	.018	.011	.012	.040	717	0(0.00%)	7(23.33%)				
Dec	.017	.012	.012	.038	742	0(0.00%)	8(25.81%)				
-BY YEAR-											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.000	.001	.002	.003	.012	.025	.036	.046	.051	.060	.087
-BY YEAR-											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
1996	.025	.018	.015	.087	8741	3(0.03%)	181(49.45%)				

n/a - not applicable

\* - no data

Wind Summary for 1996  
Fort Saskatchewan Monitoring Station

\*\* calculation is for exceedances of the 1-hour guideline for O<sub>3</sub> \*\*

Joint Wind Direction and Speed Frequency Distribution (no. of hours)										
Wind Speed (km/h)										
Dir	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	>40	TOTAL
N	0	0	0	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0	0	0	0
SSE	0	1	0	0	0	0	0	0	0	1
S	0	0	0	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0	0	0	0
W	1	1	0	0	0	0	0	0	0	2
WNW	0	0	0	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0	0	0	0
TOTAL	1	2	0	0	0	0	0	0	0	3
CALM = 0 hours										
MISSING DATA = 0 hours										

Joint Wind Direction and Speed Frequency Distribution (percent)										
Wind Speed (km/h)										
Dir	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	>40	TOTAL
N	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NNE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
ENE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
E	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
ESE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
SE	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
SSE	.0	33.3	.0	.0	.0	.0	.0	.0	.0	33.3
S	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
SSW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
SW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
WSW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
W	33.3	33.3	.0	.0	.0	.0	.0	.0	.0	66.7
WNW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
NNW	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
TOTAL	33.3	66.7	.0	.0	.0	.0	.0	.0	.0	100.0
CALM = .00%										
MISSING DATA = .00%										

Wind Summary for 1996  
Fort Saskatchewan Monitoring Station

\*\* calculation is for exceedances of the 24-hour guideline for O<sub>3</sub> \*\*

Joint Wind Direction and Speed Frequency Distribution (no. of hours)										
Wind Speed (km/h)										
Dir	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	>40	TOTAL
N	86	138	50	12	0	0	0	0	0	286
NNE	52	89	118	21	0	0	0	0	0	280
NE	47	49	26	0	0	0	0	0	0	122
ENE	69	117	44	2	0	0	0	0	0	232
E	94	134	34	7	0	0	0	0	0	269
ESE	98	107	72	25	7	0	0	0	0	309
SE	119	104	64	16	12	0	0	0	0	315
SSE	111	93	31	11	0	0	0	0	0	246
S	84	108	28	0	0	0	0	0	0	220
SSW	113	84	15	1	0	0	0	0	0	213
SW	149	63	6	0	0	0	0	0	0	218
WSW	77	74	13	0	0	0	0	0	0	164
W	70	154	34	8	0	0	0	0	0	266
WNW	94	130	132	54	19	0	0	0	0	429
NW	94	118	107	68	26	9	2	1	0	425
NNW	92	103	93	42	15	2	0	0	0	347
TOTAL	1449	1665	867	267	79	11	2	1	0	4341
CALM = 3 hours										
MISSING DATA = 0 hours										
Joint Wind Direction and Speed Frequency Distribution (percent)										
Wind Speed (km/h)										
Dir	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	>40	TOTAL
N	2.0	3.2	1.2	.3	.0	.0	.0	.0	.0	6.6
NNE	1.2	2.0	2.7	.5	.0	.0	.0	.0	.0	6.4
NE	1.1	1.1	.6	.0	.0	.0	.0	.0	.0	2.8
ENE	1.6	2.7	1.0	.0	.0	.0	.0	.0	.0	5.3
E	2.2	3.1	.8	.2	.0	.0	.0	.0	.0	6.2
ESE	2.3	2.5	1.7	.6	.2	.0	.0	.0	.0	7.1
SE	2.7	2.4	1.5	.4	.3	.0	.0	.0	.0	7.3
SSE	2.6	2.1	.7	.3	.0	.0	.0	.0	.0	5.7
S	1.9	2.5	.6	.0	.0	.0	.0	.0	.0	5.1
SSW	2.6	1.9	.3	.0	.0	.0	.0	.0	.0	4.9
SW	3.4	1.5	.1	.0	.0	.0	.0	.0	.0	5.0
WSW	1.8	1.7	.3	.0	.0	.0	.0	.0	.0	3.8
W	1.6	3.5	.8	.2	.0	.0	.0	.0	.0	6.1
WNW	2.2	3.0	3.0	1.2	.4	.0	.0	.0	.0	9.9
NW	2.2	2.7	2.5	1.6	.6	.2	.0	.0	.0	9.8
NNW	2.1	2.4	2.1	1.0	.3	.0	.0	.0	.0	8.0
TOTAL	33.4	38.3	20.0	6.1	1.8	.3	.0	.0	.0	99.9
CALM = .07%										
MISSING DATA = .00%										



03 Summary Statistics for 1996  
Fort McMurray Monitoring Station  
Units are PPM (parts per million)

Ambient 1-hour average guideline = .082 PPM											
Ambient 24-hour average guideline = .025 PPM											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.000	.000	.001	.001	.005	.012	.021	.030	.033	.037	.039
Spring	.000	.002	.007	.012	.021	.030	.039	.045	.048	.052	.058
Summer	.000	.000	.000	.001	.007	.016	.026	.034	.040	.049	.052
Autumn	.000	.000	.000	.001	.004	.012	.020	.027	.030	.034	.036
-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour		24 hour			
Winter	.014	.007	.010	.039	2180	0 (0.00%)		9 (9.89%)			
Spring	.029	.025	.012	.058	2142	0 (0.00%)		65 (73.03%)			
Summer	.017	.007	.012	.052	2198	0 (0.00%)		13 (14.29%)			
Autumn	.013	.005	.010	.036	2180	0 (0.00%)		5 (5.49%)			
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.000	.000	.001	.001	.004	.010	.020	.030	.033	.036	.038
Feb	.000	.000	.001	.002	.007	.015	.025	.031	.034	.038	.039
Mar	.000	.002	.005	.009	.018	.029	.036	.042	.044	.046	.048
Apr	.001	.003	.009	.013	.021	.031	.041	.046	.049	.052	.055
May	.000	.003	.010	.013	.023	.032	.040	.047	.051	.055	.058
Jun	.000	.001	.004	.007	.015	.023	.032	.043	.047	.050	.052
Jul	.000	.000	.001	.002	.006	.015	.024	.030	.034	.040	.046
Aug	.000	.000	.000	.000	.002	.012	.021	.027	.031	.044	.049
Sep	.000	.000	.000	.001	.005	.013	.020	.025	.028	.032	.034
Oct	.000	.000	.000	.000	.003	.010	.017	.024	.028	.033	.034
Nov	.000	.000	.000	.001	.005	.015	.024	.030	.032	.035	.036
Dec	.000	.000	.000	.001	.003	.010	.017	.026	.030	.037	.038
-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour		24 hour			
Jan	.013	.006	.010	.038	744	0 (0.00%)		2 (6.45%)			
Feb	.016	.010	.011	.039	694	0 (0.00%)		5 (17.24%)			
Mar	.027	.022	.012	.048	742	0 (0.00%)		17 (54.84%)			
Apr	.030	.027	.012	.054	720	0 (0.00%)		23 (76.67%)			
May	.031	.027	.012	.058	680	0 (0.00%)		25 (89.29%)			
Jun	.024	.018	.013	.052	720	0 (0.00%)		12 (40.00%)			
Jul	.016	.008	.011	.046	743	0 (0.00%)		0 (0.00%)			
Aug	.013	.003	.011	.049	735	0 (0.00%)		1 (3.33%)			
Sep	.013	.005	.009	.034	718	0 (0.00%)		0 (0.00%)			
Oct	.011	.003	.009	.034	744	0 (0.00%)		1 (3.23%)			
Nov	.015	.006	.011	.036	718	0 (0.00%)		4 (13.33%)			
Dec	.012	.005	.010	.038	742	0 (0.00%)		2 (6.45%)			
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.000	.000	.001	.002	.007	.017	.028	.037	.042	.049	.058
-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour		24 hour			
1996	.018	.008	.013	.058	8700	0 (0.00%)		92 (25.41%)			

n/a - not applicable                      \* - no data

Wind Summary for 1996  
Fort McMurray Monitoring Station

\*\* calculation is for exceedances of the 24-hour guideline for O<sub>3</sub> \*\*

Joint Wind Direction and Speed Frequency Distribution (no. of hours)										
Dir	Wind Speed (km/h)								TOTAL	
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40		
N	104	272	185	36	3	4	0	0	0	604
NNE	45	31	11	0	0	0	0	0	0	87
NE	42	16	3	0	0	0	0	0	0	61
ENE	44	30	7	0	0	0	0	0	0	81
E	38	26	2	0	0	0	0	0	0	66
ESE	36	23	9	0	0	0	0	0	0	68
SE	103	138	59	2	0	0	0	0	0	302
SSE	75	97	26	10	2	0	0	0	0	210
S	40	13	0	0	0	0	0	0	0	53
SSW	26	6	0	0	0	0	0	0	0	32
SW	32	28	8	0	0	0	0	0	0	68
WSW	42	36	28	10	0	0	0	0	0	116
W	56	18	21	11	4	0	0	0	0	110
WNW	38	8	19	7	4	1	0	0	0	77
NW	52	14	16	9	0	0	0	0	0	91
NNW	91	50	28	11	1	1	0	0	0	182
TOTAL	864	806	422	96	14	6	0	0	0	2208

CALM = 0 hours

MISSING DATA = 0 hours

Joint Wind Direction and Speed Frequency Distribution (percent)										
Dir	Wind Speed (km/h)								TOTAL	
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40		
N	4.7	12.3	8.4	1.6	.1	.2	.0	.0	.0	27.4
NNE	2.0	1.4	.5	.0	.0	.0	.0	.0	.0	3.9
NE	1.9	.7	.1	.0	.0	.0	.0	.0	.0	2.8
ENE	2.0	1.4	.3	.0	.0	.0	.0	.0	.0	3.7
E	1.7	1.2	.1	.0	.0	.0	.0	.0	.0	3.0
ESE	1.6	1.0	.4	.0	.0	.0	.0	.0	.0	3.1
SE	4.7	6.3	2.7	.1	.0	.0	.0	.0	.0	13.7
SSE	3.4	4.4	1.2	.5	.1	.0	.0	.0	.0	9.5
S	1.8	.6	.0	.0	.0	.0	.0	.0	.0	2.4
SSW	1.2	.3	.0	.0	.0	.0	.0	.0	.0	1.4
SW	1.4	1.3	.4	.0	.0	.0	.0	.0	.0	3.1
WSW	1.9	1.6	1.3	.5	.0	.0	.0	.0	.0	5.3
W	2.5	.8	1.0	.5	.2	.0	.0	.0	.0	5.0
WNW	1.7	.4	.9	.3	.2	.0	.0	.0	.0	3.5
NW	2.4	.6	.7	.4	.0	.0	.0	.0	.0	4.1
NNW	4.1	2.3	1.3	.5	.0	.0	.0	.0	.0	8.2
TOTAL	39.1	36.5	19.1	4.3	.6	.3	.0	.0	.0	100.0

CALM = .00%

MISSING DATA = .00%

O3 Summary Statistics for 1996  
Royal Park Monitoring Station (Vegreville)  
Units are PPM (parts per million)

Ambient 1-hour average guideline = .082 PPM											
Ambient 24-hour average guideline = .025 PPM											
BY SEASON											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.000	.001	.006	.013	.024	.031	.036	.040	.042	.045	.052
Spring	.005	.013	.019	.023	.031	.039	.046	.051	.055	.063	.075
Summer	.001	.006	.011	.014	.021	.030	.040	.050	.056	.066	.106
Autumn	.000	.001	.007	.011	.016	.024	.031	.036	.038	.046	.065
SEASON Arithmetic Geometric Arithmetic Range N Number of Exceedances											
	Mean	Mean	Std Dev				1 hour	24 hour			
Winter	.029	.024	.010	.052	2178		0(0.00%)	68(74.73%)			
Spring	.038	.036	.011	.070	2130		0(0.00%)	84(97.67%)			
Summer	.031	.028	.014	.105	2173		3(0.14%)	68(74.73%)			
Autumn	.023	.020	.010	.065	2146		0(0.00%)	32(35.56%)			
BY MONTH											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.000	.001	.007	.013	.023	.031	.037	.041	.043	.045	.046
Feb	.000	.007	.017	.021	.028	.033	.037	.041	.042	.047	.052
Mar	.009	.022	.030	.034	.038	.043	.047	.052	.055	.061	.067
Apr	.009	.012	.018	.022	.028	.037	.044	.051	.056	.068	.075
May	.005	.012	.017	.019	.026	.035	.044	.051	.055	.062	.069
Jun	.005	.009	.014	.019	.027	.035	.046	.056	.059	.063	.078
Jul	.001	.006	.010	.015	.020	.027	.035	.043	.047	.053	.073
Aug	.003	.004	.010	.012	.018	.027	.040	.050	.057	.075	.106
Sep	.000	.001	.008	.011	.016	.023	.029	.036	.041	.050	.058
Oct	.002	.003	.007	.010	.015	.022	.030	.036	.040	.048	.065
Nov	.000	.001	.006	.012	.019	.026	.032	.036	.038	.039	.039
Dec	.000	.000	.002	.007	.020	.028	.033	.037	.039	.041	.042
MONTH Arithmetic Geometric Arithmetic Range N Number of Exceedances											
	Mean	Mean	Std Dev				1 hour	24 hour			
Jan	.029	.025	.011	.046	742		0(0.00%)	23(74.19%)			
Feb	.032	.030	.008	.052	694		0(0.00%)	27(93.10%)			
Mar	.043	.042	.008	.058	683		0(0.00%)	27(100.00%)			
Apr	.037	.035	.011	.066	712		0(0.00%)	29(100.00%)			
May	.035	.033	.012	.064	735		0(0.00%)	28(93.33%)			
Jun	.036	.033	.013	.073	694		0(0.00%)	27(93.10%)			
Jul	.028	.026	.011	.072	742		0(0.00%)	21(67.74%)			
Aug	.030	.026	.015	.103	737		3(0.41%)	20(64.52%)			
Sep	.023	.019	.010	.058	717		0(0.00%)	9(30.00%)			
Oct	.022	.020	.010	.063	713		0(0.00%)	8(26.67%)			
Nov	.025	.021	.009	.039	716		0(0.00%)	15(50.00%)			
Dec	.025	.018	.011	.042	742		0(0.00%)	18(58.06%)			
BY YEAR											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.000	.002	.010	.014	.022	.030	.038	.046	.051	.060	.106
YEAR Arithmetic Geometric Arithmetic Range N Number of Exceedances											
	Mean	Mean	Std Dev				1 hour	24 hour			
1996	.030	.026	.013	.106	8627		3(0.03%)	252(70.39%)			
n/a - not applicable * - no data											

Wind Summary for 1996  
 Royal Park Monitoring Station (Vegreville)

\*\* calculation is for exceedances of the 1-hour guideline for O<sub>3</sub> \*\*

Joint Wind Direction and Speed Frequency Distribution (no. of hours)										
Dir	Wind Speed (km/h)								TOTAL	
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40		
N	0	0	0	0	0	0	0	0	0	
NNE	0	0	0	0	0	2	1	0	0	3
NE	0	0	0	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	2	1	0	0	3
CALM = 0 hours										
MISSING DATA = 0 hours										
Joint Wind Direction and Speed Frequency Distribution (percent)										
Dir	Wind Speed (km/h)								TOTAL	
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40		
N	.0	.0	.0	.0	.0	.0	.0	.0	.0	
NNE	.0	.0	.0	.0	.0	66.7	33.3	.0	.0	100.0
NE	.0	.0	.0	.0	.0	.0	.0	.0	.0	
ENE	.0	.0	.0	.0	.0	.0	.0	.0	.0	
E	.0	.0	.0	.0	.0	.0	.0	.0	.0	
ESE	.0	.0	.0	.0	.0	.0	.0	.0	.0	
SE	.0	.0	.0	.0	.0	.0	.0	.0	.0	
SSE	.0	.0	.0	.0	.0	.0	.0	.0	.0	
S	.0	.0	.0	.0	.0	.0	.0	.0	.0	
SSW	.0	.0	.0	.0	.0	.0	.0	.0	.0	
SW	.0	.0	.0	.0	.0	.0	.0	.0	.0	
WSW	.0	.0	.0	.0	.0	.0	.0	.0	.0	
W	.0	.0	.0	.0	.0	.0	.0	.0	.0	
WNW	.0	.0	.0	.0	.0	.0	.0	.0	.0	
NW	.0	.0	.0	.0	.0	.0	.0	.0	.0	
NNW	.0	.0	.0	.0	.0	.0	.0	.0	.0	
TOTAL	.0	.0	.0	.0	.0	66.7	33.3	.0	.0	100.0
CALM = .00%										
MISSING DATA = .00%										

## Wind Summary for 1996

Royal Park Monitoring Station (Vegreville)

\*\* calculation is for exceedances of the 24-hour guideline for O<sub>3</sub> \*\*

Joint Wind Direction and Speed Frequency Distribution (no. of hours)										
Dir	Wind Speed (km/h)								TOTAL	
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40		
N	15	51	62	89	74	33	15	2	3	344
NNE	11	45	60	73	71	56	32	20	22	390
NE	22	54	85	83	71	44	39	27	28	453
ENE	18	38	68	93	62	44	22	12	0	357
E	22	47	64	101	51	33	21	6	0	345
ESE	20	38	46	81	59	50	13	5	0	312
SE	14	35	65	92	76	22	5	0	0	309
SSE	22	47	73	98	60	18	8	2	2	330
S	19	56	66	97	54	26	7	10	16	351
SSW	10	48	51	69	38	33	9	4	9	271
SW	9	75	84	78	94	40	21	11	3	415
WSW	10	59	87	102	85	42	25	8	0	418
W	13	59	129	112	79	28	17	6	3	446
WNW	16	68	92	79	59	24	12	3	4	357
NW	29	76	66	60	56	12	13	3	6	321
NNW	28	48	35	86	54	18	6	6	11	292
TOTAL	278	844	1133	1393	1043	523	265	125	107	5711

CALM = 43 hours

MISSING DATA = 294 hours

Joint Wind Direction and Speed Frequency Distribution (percent)										
Dir	Wind Speed (km/h)								TOTAL	
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40		
N	.2	.8	1.0	1.5	1.2	.5	.2	.0	.0	5.7
NNE	.2	.7	1.0	1.2	1.2	.9	.5	.3	.4	6.4
NE	.4	.9	1.4	1.4	1.2	.7	.6	.4	.5	7.5
ENE	.3	.6	1.1	1.5	1.0	.7	.4	.2	.0	5.9
E	.4	.8	1.1	1.7	.8	.5	.3	.1	.0	5.7
ESE	.3	.6	.8	1.3	1.0	.8	.2	.1	.0	5.2
SE	.2	.6	1.1	1.5	1.3	.4	.1	.0	.0	5.1
SSE	.4	.8	1.2	1.6	1.0	.3	.1	.0	.0	5.5
S	.3	.9	1.1	1.6	.9	.4	.1	.2	.3	5.8
SSW	.2	.8	.8	1.1	.6	.5	.1	.1	.1	4.5
SW	.1	1.2	1.4	1.3	1.6	.7	.3	.2	.0	6.9
WSW	.2	1.0	1.4	1.7	1.4	.7	.4	.1	.0	6.9
W	.2	1.0	2.1	1.9	1.3	.5	.3	.1	.0	7.4
WNW	.3	1.1	1.5	1.3	1.0	.4	.2	.0	.1	5.9
NW	.5	1.3	1.1	1.0	.9	.2	.2	.0	.1	5.3
NNW	.5	.8	.6	1.4	.9	.3	.1	.1	.2	4.8
TOTAL	4.6	14.0	18.7	23.0	17.2	8.6	4.4	2.1	1.8	94.4

CALM = .71%

MISSING DATA = 4.86%



O<sub>3</sub> Summary Statistics for 1996  
 Springbank Airport Monitoring Station  
 Units are PPM (parts per million)

Ambient 1-hour average guideline = .082 PPM											
Ambient 24-hour average guideline = .025 PPM											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.000	.001	.002	.007	.018	.027	.035	.040	.042	.044	.047
Spring	.004	.011	.017	.020	.028	.036	.044	.050	.052	.055	.060
Summer	.003	.007	.012	.016	.026	.035	.045	.054	.061	.065	.074
Autumn	*	*	*	*	*	*	*	*	*	*	*
-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
Winter	.026	.020	.012	.047	1432	0 (0.00%)	32 (53.33%)				
Spring	.036	.034	.011	.056	2001	0 (0.00%)	78 (93.98%)				
Summer	.035	.032	.014	.071	717	0 (0.00%)	27 (90.00%)				
Autumn	*	*	*	*	*	*	*				
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.000	.001	.001	.004	.015	.023	.032	.040	.042	.043	.044
Feb	.001	.002	.007	.012	.022	.030	.037	.041	.042	.045	.047
Mar	.004	.010	.016	.020	.027	.035	.043	.046	.049	.052	.055
Apr	.004	.013	.018	.022	.029	.038	.045	.050	.052	.055	.056
May	.005	.010	.015	.020	.027	.035	.043	.052	.054	.057	.060
Jun	.003	.007	.012	.016	.026	.035	.045	.054	.061	.065	.074
Jul	*	*	*	*	*	*	*	*	*	*	*
Aug	*	*	*	*	*	*	*	*	*	*	*
Sep	*	*	*	*	*	*	*	*	*	*	*
Oct	*	*	*	*	*	*	*	*	*	*	*
Nov	*	*	*	*	*	*	*	*	*	*	*
Dec	*	*	*	*	*	*	*	*	*	*	*
-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
Jan	.023	.017	.012	.044	741	0 (0.00%)	12 (38.71%)				
Feb	.028	.025	.011	.046	691	0 (0.00%)	20 (68.97%)				
Mar	.034	.033	.010	.051	655	0 (0.00%)	26 (96.30%)				
Apr	.037	.035	.011	.052	647	0 (0.00%)	26 (96.30%)				
May	.035	.033	.012	.055	699	0 (0.00%)	26 (89.66%)				
Jun	.035	.032	.014	.071	717	0 (0.00%)	27 (90.00%)				
Jul	*	*	*	*	*	*	*				
Aug	*	*	*	*	*	*	*				
Sep	*	*	*	*	*	*	*				
Oct	*	*	*	*	*	*	*				
Nov	*	*	*	*	*	*	*				
Dec	*	*	*	*	*	*	*				
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.000	.001	.009	.015	.024	.032	.041	.048	.052	.060	.074
-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
1996	.032	.028	.013	.074	4150	0 (0.00%)	137 (79.19%)				
-----											
n/a - not applicable											

n/a - not applicable

\* - no data

Wind Summary for 1996  
Springbank Airport Monitoring Station

\*\* calculation is for exceedances of the 24-hour guideline for O<sub>3</sub> \*\*

Joint Wind Direction and Speed Frequency Distribution (no. of hours)										
Dir	Wind Speed (km/h)								TOTAL	
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40		
N	31	52	44	25	13	3	1	1	0	170
NNE	20	41	39	21	15	4	2	0	0	142
NE	18	40	38	13	9	4	1	0	0	123
ENE	28	43	22	11	0	1	0	0	0	105
E	18	31	30	9	0	0	0	0	0	88
ESE	21	31	27	15	4	2	0	0	0	100
SE	37	76	69	69	44	14	3	1	0	313
SSE	32	60	37	40	25	6	0	3	1	204
S	43	30	12	3	2	0	0	0	0	90
SSW	30	16	3	4	1	3	0	0	0	57
SW	39	17	8	2	2	3	1	0	0	72
WSW	30	26	27	24	6	5	4	4	6	132
W	51	49	59	91	99	75	50	32	29	535
WNW	73	86	63	23	23	8	6	1	1	284
NW	101	227	175	65	29	5	1	2	2	607
NNW	49	73	51	48	12	2	3	1	0	239
TOTAL	621	898	704	463	284	135	72	45	39	3261
CALM = 25 hours										
MISSING DATA = 2 hours										
Joint Wind Direction and Speed Frequency Distribution (percent)										
Dir	Wind Speed (km/h)								TOTAL	
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40		
N	.9	1.6	1.3	.8	.4	.1	.0	.0	.0	5.2
NNE	.6	1.2	1.2	.6	.5	.1	.1	.0	.0	4.3
NE	.5	1.2	1.2	.4	.3	.1	.0	.0	.0	3.7
ENE	.9	1.3	.7	.3	.0	.0	.0	.0	.0	3.2
E	.5	.9	.9	.3	.0	.0	.0	.0	.0	2.7
ESE	.6	.9	.8	.5	.1	.1	.0	.0	.0	3.0
SE	1.1	2.3	2.1	2.1	1.3	.4	.1	.0	.0	9.5
SSE	1.0	1.8	1.1	1.2	.8	.2	.0	.1	.0	6.2
S	1.3	.9	.4	.1	.1	.0	.0	.0	.0	2.7
SSW	.9	.5	.1	.1	.0	.1	.0	.0	.0	1.7
SW	1.2	.5	.2	.1	.1	.1	.0	.0	.0	2.2
WSW	.9	.8	.8	.7	.2	.2	.1	.1	.2	4.0
W	1.6	1.5	1.8	2.8	3.0	2.3	1.5	1.0	.9	16.3
WNW	2.2	2.6	1.9	.7	.7	.2	.2	.0	.0	8.6
NW	3.1	6.9	5.3	2.0	.9	.2	.0	.1	.1	18.5
NNW	1.5	2.2	1.6	1.5	.4	.1	.1	.0	.0	7.3
TOTAL	18.9	27.3	21.4	14.1	8.6	4.1	2.2	1.4	1.2	99.2
CALM = .76%										
MISSING DATA = .06%										

Annual Average Concentration										
Year: 1996										
Pollutant: O <sub>3</sub> [ppm]										
Year	EDMU	ERMU	EIMU	CDMU	CRMU	CIMU	Fort Sask.	Fort McMurray	Royal Park	Springbank Airport
1976	0.024	0.027	0.022	0.012	0.027	0.019	*	*	*	*
1977	0.014	0.015	0.015	0.011	0.021	0.013	*	*	*	*
1978	0.009	0.017	0.017	0.014	0.022	0.012	*	*	*	*
1979	0.012	0.019	0.023	0.013	0.024	0.018	*	*	*	*
1980	0.012	0.015	0.020	0.012	0.020	0.014	*	*	*	*
1981	0.012	0.018	0.021	0.010	0.020	0.012	b	*	*	*
1982	0.014	0.021	0.024	0.012	0.022	0.016	0.027	*	*	*
1983	0.012	0.018	0.022	0.012	0.021	0.015	0.022	*	*	*
1984	0.015	0.017	0.020	0.013	0.023	0.015	0.027	0.021	*	*
1985	0.015	0.015	0.025	0.013	0.023	0.017	0.024	0.020	*	*
1986	0.016	0.018	0.022	0.012	0.022	0.017	0.021	0.020	*	*
1987	0.021	0.019	0.022	0.014	0.023	0.017	0.024	0.022	*	*
1988	0.016	0.018	0.022	0.016	0.023	0.017	0.025	0.022	*	*
1989	0.015	0.016	0.020	0.015	0.024	0.016	0.021	0.023	*	*
1990	0.014	0.018	0.021	0.014	0.023	0.018	0.025	0.025	*	*
1991	0.017	0.020	0.020	0.015	0.025	0.018	0.027	0.022	*	*
1992	0.016	0.017	0.020	0.013	0.021	0.015	0.020	0.021	*	*
1993	0.017	0.017	0.021	0.013	0.021	0.014	0.022	0.022	0.027	*
1994	0.020	0.020	0.023	0.015	0.023	0.017	0.027	0.024	0.027	0.028
1995	0.014	0.016	0.022	0.012	0.021	0.015	0.025	0.019	0.029	0.024
1996	0.016	0.015	0.022	0.014	0.023	0.017	0.025	0.018	0.030	0.032

a 50% to 75% of data available

b less than 50% of data available

\* no data available

PM<sub>10</sub> Summary Statistics for 1996  
Edmonton Northwest Monitoring Station  
Units are µg/m<sup>3</sup> (micrograms per cubic meter)

No guidelines											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	0.	3.	4.	5.	6.	11.	19.	29.	40.	70.	127.
Spring	1.	3.	5.	6.	10.	15.	24.	36.	46.	74.	302.
Summer	0.	3.	5.	6.	10.	15.	25.	39.	52.	75.	161.
Autumn	0.	3.	4.	4.	5.	8.	13.	19.	23.	39.	58.
-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Winter	14.7	10.9	13.3	127.	2070	n/a					
Spring	19.3	15.2	16.8	301.	2202	n/a					
Summer	19.7	15.0	16.0	161.	2028	n/a					
Autumn	10.0	8.2	6.9	58.	2179	n/a					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	2.	3.	4.	5.	7.	10.	18.	28.	42.	79.	95.
Feb	2.	4.	5.	7.	11.	18.	26.	38.	49.	91.	127.
Mar	1.	3.	4.	6.	9.	15.	26.	40.	55.	77.	302.
Apr	2.	3.	5.	6.	10.	15.	25.	37.	49.	108.	194.
May	2.	4.	6.	7.	10.	15.	21.	31.	38.	50.	191.
Jun	1.	3.	4.	6.	9.	14.	21.	31.	43.	74.	156.
Jul	0.	3.	5.	7.	10.	15.	23.	31.	37.	52.	81.
Aug	0.	3.	5.	7.	10.	19.	35.	57.	66.	90.	161.
Sep	0.	2.	4.	4.	5.	7.	11.	19.	23.	29.	43.
Oct	3.	3.	4.	5.	7.	10.	15.	21.	25.	47.	58.
Nov	2.	3.	3.	4.	5.	6.	11.	15.	21.	34.	52.
Dec	0.	3.	3.	4.	5.	7.	11.	15.	20.	37.	49.
-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Jan	14.7	11.3	13.3	93.	663	n/a					
Feb	21.1	17.0	15.7	124.	675	n/a					
Mar	20.3	15.1	19.4	301.	742	n/a					
Apr	20.3	15.6	18.1	193.	718	n/a					
May	17.3	14.7	11.6	189.	742	n/a					
Jun	17.2	13.4	14.7	155.	718	n/a					
Jul	17.1	14.1	10.3	81.	689	n/a					
Aug	25.5	18.2	20.4	161.	621	n/a					
Sep	9.3	7.6	6.2	43.	718	n/a					
Oct	11.9	10.2	7.7	55.	743	n/a					
Nov	8.6	7.2	6.3	49.	718	n/a					
Dec	8.7	7.1	6.4	49.	732	n/a					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	0.	3.	4.	5.	7.	12.	20.	31.	42.	69.	302.
-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
1996	15.9	11.9	14.3	302.	8479	n/a					
-----											

n/a - not applicable

\* - no data

PM<sub>10</sub> Summary Statistics for 1996  
 Calgary Central Monitoring Station  
 Units are µg /m<sup>3</sup> (micrograms per cubic meter)

No guidelines											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	1.	3.	4.	5.	7.	10.	16.	28.	36.	65.	169.
Spring	2.	3.	5.	5.	7.	11.	17.	26.	33.	52.	84.
Summer	0.	2.	4.	5.	8.	12.	18.	25.	29.	41.	124.
Autumn	1.	3.	4.	4.	6.	9.	14.	21.	26.	39.	86.
-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Winter	13.9	10.7	13.1	168.	2181	n/a					
Spring	13.7	11.2	9.8	82.	2200	n/a					
Summer	14.0	11.7	8.8	124.	2109	n/a					
Autumn	10.9	8.9	7.9	85.	2172	n/a					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	2.	3.	4.	5.	6.	9.	13.	21.	27.	40.	72.
Feb	1.	4.	5.	6.	8.	13.	23.	39.	53.	107.	169.
Mar	2.	3.	4.	5.	7.	10.	17.	30.	37.	54.	73.
Apr.	3.	4.	5.	6.	8.	12.	18.	28.	36.	59.	84.
May	3.	4.	5.	6.	7.	11.	15.	21.	25.	35.	66.
Jun	1.	3.	4.	5.	8.	11.	15.	21.	27.	41.	124.
Jul	2.	2.	5.	6.	9.	13.	18.	24.	27.	36.	67.
Aug	0.	2.	4.	5.	8.	15.	21.	28.	35.	45.	67.
Sep	2.	3.	4.	4.	5.	8.	13.	22.	28.	38.	49.
Oct	1.	2.	4.	5.	7.	10.	16.	21.	25.	36.	86.
Nov	2.	3.	3.	4.	5.	8.	12.	19.	23.	49.	77.
Dec	2.	3.	4.	4.	6.	9.	15.	25.	33.	48.	59.
-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Jan	11.0	9.2	7.8	70.	743	n/a					
Feb	18.9	14.0	18.5	168.	694	n/a					
Mar	13.7	10.7	11.1	71.	740	n/a					
Apr	15.2	12.7	10.6	81.	717	n/a					
May	12.1	10.5	6.9	63.	743	n/a					
Jun	12.4	10.6	8.4	123.	719	n/a					
Jul	13.7	11.9	7.2	66.	665	n/a					
Aug	15.9	12.8	10.0	67.	725	n/a					
Sep	10.8	8.7	7.9	48.	713	n/a					
Oct	11.9	9.9	7.6	85.	741	n/a					
Nov	10.0	8.2	8.1	75.	718	n/a					
Dec	12.0	9.6	9.4	57.	744	n/a					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	0.	3.	4.	5.	7.	10.	16.	25.	31.	52.	169.
-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
1996	13.1	10.6	10.2	168.	8662	n/a					

n/a - not applicable

\* - no data



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Annual Average Concentration		
Year: 1996		
Pollutant: PM <sub>10</sub> [µg /m3]		
-----		
Year	Edmonton	Calgary
	Northwest	Central
-----		
1976	*	*
1977	*	*
1978	*	*
1979	*	*
1980	*	*
1981	*	*
1982	*	*
1983	*	*
1984	*	*
1985	*	*
1986	*	*
1987	*	*
1988	*	*
1989	*	*
1990	*	*
1991	*	*
1992	*	*
1993	b	*
1994	21.7	*
1995	20.0	13.5
1996	15.9	13.1
-----		

a 50% to 75% of data available  
 b less than 50% of data available  
 \* no data available



SO<sub>2</sub> Summary Statistics for 1996  
Edmonton East Monitoring Station  
Units are PPM (parts per million)

-----											
Ambient 1-hour average guideline = .170 PPM											
Ambient 24-hour average guideline = .060 PPM											
Ambient annual average guideline = .010 PPM											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.000	.000	.000	.001	.002	.003	.005	.008	.009	.015	.044
Spring	.000	.000	.000	.000	.001	.002	.003	.005	.007	.011	.052
Summer	.000	.000	.000	.000	.001	.002	.003	.005	.008	.020	.030
Autumn	.000	.000	.000	.000	.001	.001	.003	.005	.007	.012	.024
-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
Winter	.004	.002	.003	.044	2131	0 (0.00%)	0 (0.00%)				
Spring	.002	.001	.003	.052	2189	0 (0.00%)	0 (0.00%)				
Summer	.003	.001	.004	.030	2187	0 (0.00%)	0 (0.00%)				
Autumn	.002	.000	.003	.024	2163	0 (0.00%)	0 (0.00%)				
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.000	.000	.000	.001	.002	.003	.005	.007	.008	.013	.044
Feb	.000	.000	.000	.000	.002	.003	.006	.009	.011	.019	.031
Mar	.000	.000	.001	.001	.001	.002	.004	.007	.008	.012	.052
Apr	.000	.000	.000	.000	.001	.002	.003	.005	.006	.013	.037
May	.000	.000	.000	.000	.001	.001	.002	.004	.005	.009	.014
Jun	.000	.000	.000	.000	.001	.001	.003	.004	.006	.016	.029
Jul	.000	.000	.000	.000	.001	.002	.003	.004	.007	.024	.029
Aug	.000	.000	.000	.000	.001	.002	.004	.007	.011	.020	.030
Sep	.000	.000	.000	.000	.000	.001	.002	.003	.004	.013	.024
Oct	.000	.000	.000	.000	.001	.002	.003	.005	.006	.013	.021
Nov	.000	.000	.000	.000	.001	.002	.005	.007	.008	.013	.024
Dec	.000	.000	.000	.001	.002	.004	.006	.008	.009	.014	.026
-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
Jan	.003	.002	.003	.044	737	0 (0.00%)	0 (0.00%)				
Feb	.004	.001	.004	.031	652	0 (0.00%)	0 (0.00%)				
Mar	.003	.002	.003	.052	739	0 (0.00%)	0 (0.00%)				
Apr	.002	.001	.003	.037	716	0 (0.00%)	0 (0.00%)				
May	.002	.001	.002	.014	734	0 (0.00%)	0 (0.00%)				
Jun	.002	.001	.003	.029	715	0 (0.00%)	0 (0.00%)				
Jul	.002	.001	.004	.029	739	0 (0.00%)	0 (0.00%)				
Aug	.003	.001	.004	.030	733	0 (0.00%)	0 (0.00%)				
Sep	.001	.000	.002	.024	713	0 (0.00%)	0 (0.00%)				
Oct	.002	.001	.002	.021	737	0 (0.00%)	0 (0.00%)				
Nov	.003	.001	.003	.024	713	0 (0.00%)	0 (0.00%)				
Dec	.004	.002	.003	.026	742	0 (0.00%)	0 (0.00%)				
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.000	.000	.000	.000	.001	.002	.004	.006	.008	.015	.052
-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
1996	.003	.001	.003	.052	8670	0 (0.00%)	0 (0.00%)				
-----											
n/a - not applicable * - no data											

n/a - not applicable

\* - no data

SO<sub>2</sub> Summary Statistics for 1996  
 Calgary East Monitoring Station  
 Units are PPM (parts per million)

-----											
Ambient 1-hour average guideline = .170 PPM											
Ambient 24-hour average guideline = .060 PPM											
Ambient annual average guideline = .010 PPM											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.000	.000	.000	.001	.003	.005	.007	.010	.011	.015	.027
Spring	.000	.000	.001	.001	.002	.003	.004	.006	.007	.011	.042
Summer	.000	.001	.002	.002	.002	.003	.004	.006	.007	.009	.022
Autumn	.000	.000	.001	.001	.002	.003	.005	.007	.008	.012	.020
-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
Winter	.005	.003	.003	.027	2139	0 (0.00%)	0 (0.00%)				
Spring	.003	.002	.002	.042	2178	0 (0.00%)	0 (0.00%)				
Summer	.004	.003	.002	.022	2153	0 (0.00%)	0 (0.00%)				
Autumn	.004	.002	.002	.020	2175	0 (0.00%)	0 (0.00%)				
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.001	.001	.001	.002	.004	.006	.008	.011	.012	.017	.027
Feb	.000	.000	.001	.002	.003	.004	.007	.009	.010	.013	.021
Mar	.000	.000	.001	.001	.002	.004	.005	.008	.009	.013	.042
Apr	.000	.000	.001	.001	.002	.003	.004	.005	.006	.010	.011
May	.000	.000	.001	.001	.002	.003	.003	.004	.005	.006	.009
Jun	.000	.001	.002	.002	.002	.003	.004	.005	.006	.009	.011
Jul	.000	.001	.002	.002	.003	.003	.004	.005	.006	.008	.011
Aug	.001	.001	.002	.002	.002	.003	.005	.007	.007	.011	.022
Sep	.000	.001	.001	.002	.002	.003	.005	.006	.007	.010	.018
Oct	.000	.000	.000	.001	.002	.003	.005	.006	.008	.011	.019
Nov	.000	.000	.001	.001	.002	.004	.006	.008	.010	.014	.020
Dec	.000	.000	.000	.000	.002	.004	.007	.009	.011	.015	.023
-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
Jan	.006	.005	.004	.026	740	0 (0.00%)	0 (0.00%)				
Feb	.005	.003	.003	.021	689	0 (0.00%)	0 (0.00%)				
Mar	.004	.002	.003	.042	737	0 (0.00%)	0 (0.00%)				
Apr	.003	.002	.002	.011	713	0 (0.00%)	0 (0.00%)				
May	.003	.002	.001	.009	728	0 (0.00%)	0 (0.00%)				
Jun	.003	.003	.002	.011	714	0 (0.00%)	0 (0.00%)				
Jul	.004	.003	.001	.011	700	0 (0.00%)	0 (0.00%)				
Aug	.004	.003	.002	.021	739	0 (0.00%)	0 (0.00%)				
Sep	.004	.003	.002	.018	715	0 (0.00%)	0 (0.00%)				
Oct	.003	.002	.002	.019	740	0 (0.00%)	0 (0.00%)				
Nov	.004	.003	.003	.020	720	0 (0.00%)	0 (0.00%)				
Dec	.005	.002	.004	.023	710	0 (0.00%)	0 (0.00%)				
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.000	.000	.001	.001	.002	.003	.005	.007	.009	.013	.042
-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
1996	.004	.003	.003	.042	8645	0 (0.00%)	0 (0.00%)				
-----											

n/a - not applicable

\* - no data

SO<sub>2</sub> Summary Statistics for 1996  
Fort Saskatchewan Monitoring Station  
Units are PPM (parts per million)

-----											
Ambient 1-hour average guideline = .170 PPM											
Ambient 24-hour average guideline = .060 PPM											
Ambient annual average guideline = .010 PPM											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.000	.001	.001	.002	.002	.003	.005	.007	.008	.013	.042
Spring	.000	.000	.000	.001	.001	.001	.002	.004	.005	.009	.016
Summer	.000	.000	.000	.000	.001	.001	.002	.003	.003	.006	.017
Autumn	.000	.000	.000	.001	.001	.002	.002	.004	.005	.007	.017
-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
Winter	.004	.003	.003	.042	2170	0(0.00%)	0(0.00%)				
Spring	.002	.001	.002	.016	2192	0(0.00%)	0(0.00%)				
Summer	.001	.001	.001	.017	2191	0(0.00%)	0(0.00%)				
Autumn	.002	.001	.002	.017	2172	0(0.00%)	0(0.00%)				
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.000	.001	.001	.002	.002	.003	.005	.007	.008	.013	.016
Feb	.001	.001	.001	.001	.002	.003	.005	.007	.009	.015	.042
Mar	.000	.001	.001	.001	.001	.002	.004	.006	.007	.010	.016
Apr	.000	.000	.000	.000	.001	.001	.002	.003	.003	.005	.015
May	.000	.000	.000	.001	.001	.001	.002	.003	.004	.007	.014
Jun	.000	.000	.000	.001	.001	.001	.002	.003	.003	.006	.014
Jul	.000	.000	.000	.000	.001	.001	.002	.002	.003	.005	.015
Aug	.000	.000	.000	.000	.001	.001	.002	.003	.004	.008	.017
Sep	.000	.000	.000	.001	.001	.001	.002	.002	.003	.005	.009
Oct	.000	.000	.001	.001	.001	.002	.002	.004	.004	.009	.017
Nov	.000	.000	.001	.001	.001	.002	.003	.005	.006	.010	.014
Dec	.000	.001	.001	.002	.002	.004	.005	.007	.008	.009	.017
-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
Jan	.004	.003	.002	.016	736	0(0.00%)	0(0.00%)				
Feb	.004	.003	.003	.041	692	0(0.00%)	0(0.00%)				
Mar	.003	.002	.002	.016	738	0(0.00%)	0(0.00%)				
Apr	.001	.001	.001	.015	714	0(0.00%)	0(0.00%)				
May	.002	.001	.001	.014	740	0(0.00%)	0(0.00%)				
Jun	.001	.001	.001	.014	715	0(0.00%)	0(0.00%)				
Jul	.001	.001	.001	.015	737	0(0.00%)	0(0.00%)				
Aug	.002	.001	.002	.017	739	0(0.00%)	0(0.00%)				
Sep	.001	.001	.001	.009	715	0(0.00%)	0(0.00%)				
Oct	.002	.001	.002	.017	740	0(0.00%)	0(0.00%)				
Nov	.003	.001	.002	.014	717	0(0.00%)	0(0.00%)				
Dec	.004	.003	.002	.017	742	0(0.00%)	0(0.00%)				
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.000	.000	.000	.001	.001	.002	.003	.005	.006	.010	.042
-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
1996	.002	.001	.002	.042	8725	0(0.00%)	0(0.00%)				
-----											
n/a - not applicable											

n/a - not applicable

\* - no data



SO<sub>2</sub> Summary Statistics for 1996  
Fort McMurray Monitoring Station  
Units are PPM (parts per million)

Ambient 1-hour average guideline = .170 PPM											
Ambient 24-hour average guideline = .060 PPM											
Ambient annual average guideline = .010 PPM											
BY SEASON-											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.000	.000	.000	.000	.001	.001	.002	.004	.011	.034	.093
Spring	.000	.000	.000	.000	.000	.001	.002	.009	.018	.042	.097
Summer	.000	.000	.000	.000	.000	.000	.001	.002	.006	.016	.050
Autumn	.000	.000	.000	.000	.000	.001	.001	.002	.005	.020	.058
SEASON Arithmetic Geometric Arithmetic Range N Number of Exceedances											
	Mean	Mean		Std Dev				1 hour	24 hour		
Winter	.002	.000		.006	.093	2174		0 (0.00%)	0 (0.00%)		
Spring	.003	.000		.008	.097	2201		0 (0.00%)	0 (0.00%)		
Summer	.001	.000		.003	.050	2194		0 (0.00%)	0 (0.00%)		
Autumn	.001	.000		.004	.058	2176		0 (0.00%)	0 (0.00%)		
BY MONTH-											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.000	.000	.000	.000	.001	.001	.002	.006	.014	.039	.064
Feb	.000	.000	.000	.000	.001	.001	.003	.008	.017	.042	.093
Mar	.000	.000	.000	.000	.001	.002	.006	.019	.029	.061	.093
Apr	.000	.000	.000	.000	.000	.000	.001	.002	.007	.023	.097
May	.000	.000	.000	.000	.000	.000	.001	.005	.011	.026	.043
Jun	.000	.000	.000	.000	.000	.000	.001	.004	.009	.023	.041
Jul	.000	.000	.000	.000	.000	.000	.001	.004	.008	.019	.050
Aug	.000	.000	.000	.000	.000	.000	.001	.001	.002	.008	.011
Sep	.000	.000	.000	.000	.000	.000	.001	.001	.004	.020	.035
Oct	.000	.000	.000	.000	.000	.001	.001	.002	.005	.019	.046
Nov	.000	.000	.000	.000	.000	.001	.001	.002	.005	.024	.058
Dec	.000	.000	.000	.000	.000	.001	.001	.002	.003	.010	.017
MONTH Arithmetic Geometric Arithmetic Range N Number of Exceedances											
	Mean	Mean		Std Dev				1 hour	24 hour		
Jan	.003	.001		.006	.064	739		0 (0.00%)	0 (0.00%)		
Feb	.004	.001		.008	.093	693		0 (0.00%)	0 (0.00%)		
Mar	.006	.001		.011	.093	741		0 (0.00%)	0 (0.00%)		
Apr	.002	.000		.006	.097	718		0 (0.00%)	0 (0.00%)		
May	.002	.000		.005	.043	742		0 (0.00%)	0 (0.00%)		
Jun	.001	.000		.004	.041	718		0 (0.00%)	0 (0.00%)		
Jul	.002	.000		.004	.050	742		0 (0.00%)	0 (0.00%)		
Aug	.001	.000		.001	.011	734		0 (0.00%)	0 (0.00%)		
Sep	.001	.000		.003	.035	717		0 (0.00%)	0 (0.00%)		
Oct	.001	.000		.003	.046	741		0 (0.00%)	0 (0.00%)		
Nov	.002	.000		.005	.058	718		0 (0.00%)	0 (0.00%)		
Dec	.001	.000		.002	.017	742		0 (0.00%)	0 (0.00%)		
BY YEAR-											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.000	.000	.000	.000	.000	.001	.001	.004	.010	.029	.097
YEAR Arithmetic Geometric Arithmetic Range N Number of Exceedances											
	Mean	Mean		Std Dev				1 hour	24 hour		
1996	.002	.000		.006	.097	8745		0 (0.00%)	0 (0.00%)		
n/a - not applicable * - no data											

n/a - not applicable

\* - no data

SO<sub>2</sub> Summary Statistics for 1996  
Fort Mackay Monitoring Station  
Units are PPM (parts per million)

-----											
Ambient 1-hour average guideline = .170 PPM											
Ambient 24-hour average guideline = .060 PPM											
Ambient annual average guideline = .010 PPM											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	.000	.000	.001	.001	.001	.002	.003	.005	.008	.023	.148
Spring	.001	.001	.001	.001	.001	.002	.003	.010	.023	.051	.133
Summer	.000	.000	.001	.001	.001	.001	.002	.004	.010	.029	.149
Autumn	.001	.001	.001	.001	.001	.001	.002	.004	.008	.029	.128
-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
Winter	.003	.001	.006	.148	2132	0 (0.00%)	0 (0.00%)				
Spring	.005	.002	.010	.132	2201	0 (0.00%)	0 (0.00%)				
Summer	.003	.001	.007	.149	2130	0 (0.00%)	0 (0.00%)				
Autumn	.003	.002	.006	.127	2102	0 (0.00%)	0 (0.00%)				
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	.000	.000	.001	.001	.001	.002	.003	.005	.006	.010	.023
Feb	.000	.000	.000	.001	.001	.002	.003	.007	.011	.031	.148
Mar	.001	.001	.001	.002	.002	.002	.003	.006	.015	.050	.133
Apr	.001	.001	.001	.001	.001	.002	.003	.009	.022	.045	.085
May	.001	.001	.001	.001	.001	.001	.003	.017	.028	.065	.110
Jun	.001	.001	.001	.001	.001	.001	.001	.003	.009	.024	.049
Jul	.000	.000	.001	.001	.001	.001	.002	.006	.015	.048	.149
Aug	.000	.000	.000	.001	.001	.001	.002	.005	.009	.020	.065
Sep	.001	.001	.001	.001	.001	.001	.002	.004	.008	.028	.066
Oct	.001	.001	.001	.001	.001	.002	.002	.005	.012	.041	.128
Nov	.001	.001	.001	.001	.001	.001	.002	.004	.006	.019	.096
Dec	.001	.001	.001	.001	.001	.002	.003	.004	.007	.035	.072
-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
Jan	.003	.002	.002	.023	700	0 (0.00%)	0 (0.00%)				
Feb	.004	.001	.008	.148	690	0 (0.00%)	0 (0.00%)				
Mar	.004	.003	.010	.132	742	0 (0.00%)	0 (0.00%)				
Apr	.004	.002	.009	.084	717	0 (0.00%)	0 (0.00%)				
May	.006	.002	.012	.109	742	0 (0.00%)	0 (0.00%)				
Jun	.002	.001	.004	.048	662	0 (0.00%)	0 (0.00%)				
Jul	.003	.001	.010	.149	742	0 (0.00%)	0 (0.00%)				
Aug	.002	.001	.004	.065	726	0 (0.00%)	0 (0.00%)				
Sep	.002	.002	.005	.065	717	0 (0.00%)	0 (0.00%)				
Oct	.003	.002	.008	.127	691	0 (0.00%)	0 (0.00%)				
Nov	.002	.002	.005	.095	694	0 (0.00%)	0 (0.00%)				
Dec	.003	.002	.006	.071	742	0 (0.00%)	0 (0.00%)				
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.000	.000	.001	.001	.001	.002	.002	.005	.011	.039	.149
-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
						1 hour	24 hour				
1996	.003	.002	.008	.149	8565	0 (0.00%)	0 (0.00%)				
-----											
n/a - not applicable											

n/a - not applicable

\* - no data

Annual Average Concentration									
Year: 1996									
Pollutant: SO <sub>2</sub> [ppm]									
Year	EDMU	ERMU	EIMU	CDMU	CRMU	CIMU	Fort Sask.	Fort McMurray	Fort Mackay
1976	0.00	0.00	0.00	0.00	0.00	0.00	*	*	*
1977	0.00	0.00	0.00	0.00	0.00	0.00	*	*	*
1978	0.00	0.00	0.00	0.00	0.00	0.00	*	*	*
1979	0.00	0.00	0.00	0.00	0.00	0.00	*	0.00	*
1980	0.00	0.00	0.00	0.00	0.00	0.00	*	0.00	*
1981	b	b	0.00	*	*	0.00	b	0.00	*
1982	*	*	0.00	*	*	0.00	0.00	0.00	*
1983	*	*	0.00	*	*	0.00	0.00	0.00	b
1984	*	*	0.00	*	*	0.00	0.00	0.00	0.00
1985	*	*	0.00	*	*	0.00	0.00	0.00	0.00
1986	*	*	0.00	*	*	0.00	0.00	0.00	0.00
1987	*	*	0.002	*	*	0.004	0.002	0.003	0.004
1988	*	*	0.003	*	*	0.005	0.002	0.002	0.003
1989	*	*	0.003	*	*	0.003	0.002a	0.004	0.003
1990	*	*	0.003	*	*	0.003	0.002	0.003	0.003
1991	*	*	0.003	*	*	0.003	0.002	0.003	0.003
1992	*	*	0.002	*	*	0.003	0.002	0.003	0.003
1993	*	*	0.003	*	*	0.003	0.002	0.002	0.003
1994	*	*	0.003	*	*	0.004	0.002	0.003	0.004
1995	*	*	0.002	*	*	0.004	0.002	0.003	0.003
1996	*	*	0.003	*	*	0.004	0.002	0.002	0.003

a 50% to 75% of data available  
b less than 50% of data available  
\* no data available

THC Summary Statistics for 1996  
Edmonton Central Monitoring Station  
Units are PPM (parts per million)

No guidelines											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	1.8	1.9	2.0	2.0	2.2	2.4	2.7	3.1	3.3	4.0	4.7
Spring	1.8	1.9	2.0	2.0	2.1	2.2	2.3	2.5	2.7	3.2	4.3
Summer	1.6	1.7	1.8	1.8	1.9	1.9	2.0	2.2	2.4	2.9	4.1
Autumn	1.7	1.8	1.9	1.9	2.0	2.2	2.3	2.6	2.8	3.2	3.9
-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Winter	2.48	2.45	.44	2.9	2180	n/a					
Spring	2.24	2.23	.25	2.5	2190	n/a					
Summer	1.99	1.98	.21	2.5	2075	n/a					
Autumn	2.22	2.20	.30	2.2	2184	n/a					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	1.8	1.9	2.0	2.0	2.1	2.3	2.6	3.1	3.4	4.3	4.7
Feb	1.8	1.8	1.9	2.0	2.1	2.3	2.6	3.0	3.3	3.9	4.5
Mar	1.9	1.9	2.0	2.0	2.1	2.2	2.4	2.7	2.9	3.6	4.3
Apr	1.9	2.0	2.0	2.1	2.2	2.2	2.4	2.6	2.7	3.1	3.4
May	1.8	1.9	1.9	2.0	2.0	2.1	2.2	2.3	2.4	2.6	2.8
Jun	1.7	1.8	1.9	1.9	1.9	2.0	2.1	2.2	2.4	2.7	3.3
Jul	1.7	1.8	1.8	1.8	1.8	1.9	2.0	2.1	2.2	2.4	2.9
Aug	1.6	1.7	1.8	1.8	1.8	1.9	2.0	2.3	2.5	3.2	4.1
Sep	1.7	1.8	1.8	1.8	1.9	2.0	2.1	2.3	2.5	2.9	3.8
Oct	1.9	1.9	2.0	2.0	2.1	2.2	2.3	2.5	2.7	3.0	3.2
Nov	1.9	2.0	2.1	2.1	2.2	2.3	2.5	2.9	3.1	3.4	3.9
Dec	1.9	2.0	2.1	2.2	2.3	2.5	2.8	3.1	3.4	3.8	4.3
-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Jan	2.45	2.41	.48	2.9	743	n/a					
Feb	2.42	2.39	.42	2.7	695	n/a					
Mar	2.31	2.29	.31	2.4	744	n/a					
Apr	2.29	2.28	.21	1.5	703	n/a					
May	2.11	2.11	.15	1.0	743	n/a					
Jun	2.02	2.02	.17	1.6	671	n/a					
Jul	1.94	1.94	.14	1.2	660	n/a					
Aug	2.00	1.98	.28	2.5	744	n/a					
Sep	2.04	2.03	.22	2.1	720	n/a					
Oct	2.24	2.23	.22	1.3	744	n/a					
Nov	2.39	2.37	.33	2.0	720	n/a					
Dec	2.57	2.54	.40	2.4	742	n/a					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	1.6	1.8	1.8	1.9	2.0	2.2	2.4	2.7	2.9	3.5	4.7
-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
1996	2.24	2.21	.36	3.1	8629	n/a					
-----											
n/a - not applicable                      * - no data											

THC Summary Statistics for 1996  
Edmonton Northwest Monitoring Station  
Units are PPM (parts per million)

No guidelines											
-----											
--BY SEASON--											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	1.5	1.6	1.7	1.7	1.9	2.3	2.7	3.2	3.5	4.1	5.4
Spring	1.5	1.5	1.5	1.6	1.6	1.7	1.9	2.1	2.3	2.8	4.2
Summer	1.4	1.4	1.5	1.5	1.5	1.6	1.7	1.9	2.1	2.5	4.0
Autumn	1.6	1.7	1.7	1.8	1.9	2.0	2.4	2.8	3.1	3.7	5.0
-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Winter	2.39	2.32	.58	3.9	2184	n/a					
Spring	1.80	1.78	.26	2.7	2207	n/a					
Summer	1.66	1.65	.22	2.6	2170	n/a					
Autumn	2.18	2.14	.45	3.4	2183	n/a					
-----											
--BY MONTH--											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	1.6	1.6	1.6	1.7	1.8	2.1	2.5	2.9	3.2	4.1	5.4
Feb	1.5	1.5	1.6	1.7	1.8	2.1	2.4	2.7	3.0	3.9	5.2
Mar	1.5	1.5	1.6	1.6	1.6	1.8	2.0	2.3	2.4	3.0	4.2
Apr	1.5	1.5	1.6	1.6	1.7	1.7	1.9	2.1	2.3	2.9	3.8
May	1.5	1.5	1.5	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.4
Jun	1.5	1.5	1.5	1.5	1.6	1.6	1.7	1.9	2.0	2.4	4.0
Jul	1.4	1.4	1.5	1.5	1.5	1.6	1.6	1.8	1.9	2.1	2.6
Aug	1.4	1.4	1.5	1.5	1.5	1.6	1.8	2.1	2.3	2.7	3.4
Sep	1.6	1.7	1.7	1.7	1.8	1.9	1.9	2.2	2.4	3.1	3.7
Oct	1.6	1.6	1.7	1.8	1.9	2.0	2.2	2.5	2.7	3.1	5.0
Nov	1.7	1.8	1.9	2.2	2.3	2.4	2.8	3.2	3.5	4.2	4.7
Dec	2.0	2.0	2.1	2.2	2.4	2.7	3.1	3.5	3.8	4.3	4.6
-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Jan	2.20	2.14	.54	3.8	744	n/a					
Feb	2.15	2.11	.48	3.7	696	n/a					
Mar	1.87	1.85	.32	2.7	743	n/a					
Apr	1.82	1.81	.27	2.3	720	n/a					
May	1.70	1.69	.14	.9	744	n/a					
Jun	1.67	1.66	.21	2.5	717	n/a					
Jul	1.61	1.60	.14	1.2	744	n/a					
Aug	1.72	1.70	.27	2.0	709	n/a					
Sep	1.92	1.91	.25	2.1	719	n/a					
Oct	2.06	2.04	.31	3.4	744	n/a					
Nov	2.56	2.52	.47	3.0	720	n/a					
Dec	2.79	2.75	.50	2.6	744	n/a					
-----											
--BY YEAR--											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	1.4	1.5	1.5	1.6	1.6	1.8	2.2	2.7	3.0	3.7	5.4
-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
1996	2.01	1.96	.50	4.0	8744	n/a					
-----											
n/a - not applicable				* - no data							

n/a - not applicable

\* - no data



THC Summary Statistics for 1996  
Edmonton East Monitoring Station  
Units are PPM (parts per million)

No guidelines											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	1.4	1.8	1.8	1.9	2.1	2.4	2.7	3.2	4.1	6.7	11.0
Spring	1.1	2.0	2.1	2.1	2.2	2.3	2.5	2.7	3.0	4.1	18.3
Summer	1.5	1.8	2.0	2.1	2.2	2.3	2.5	2.8	3.1	4.5	8.5
Autumn	1.5	1.9	2.0	2.0	2.1	2.2	2.4	2.7	2.9	4.0	6.2
-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Winter	2.57	2.47	.89	9.6	2087	n/a					
Spring	2.40	2.37	.57	17.2	2204	n/a					
Summer	2.41	2.37	.47	7.0	2200	n/a					
Autumn	2.30	2.28	.38	4.7	2176	n/a					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	1.7	1.8	1.8	1.9	2.0	2.2	2.5	3.1	3.8	5.6	11.0
Feb	1.4	1.7	1.8	1.9	2.0	2.4	2.8	3.9	5.0	8.0	9.5
Mar	2.1	2.1	2.2	2.2	2.2	2.3	2.5	2.8	3.2	4.8	18.3
Apr	1.9	2.0	2.1	2.1	2.2	2.3	2.4	2.6	2.8	3.7	9.3
May	1.1	1.2	2.0	2.1	2.2	2.3	2.4	2.7	3.0	3.7	4.4
Jun	2.0	2.0	2.1	2.1	2.2	2.2	2.4	2.7	3.2	4.6	6.6
Jul	1.8	1.8	2.1	2.1	2.2	2.3	2.5	2.7	2.9	3.6	7.2
Aug	1.5	1.6	1.9	2.0	2.2	2.3	2.5	2.9	3.4	4.9	8.5
Sep	1.5	1.9	1.9	1.9	2.0	2.1	2.2	2.5	2.7	3.5	6.2
Oct	1.9	1.9	2.0	2.0	2.1	2.2	2.4	2.6	2.9	3.6	4.8
Nov	1.9	2.0	2.0	2.1	2.2	2.3	2.6	2.8	3.2	4.4	5.2
Dec	2.0	2.1	2.1	2.2	2.3	2.5	2.8	3.1	3.8	6.4	9.1
-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Jan	2.39	2.31	.77	9.3	743	n/a					
Feb	2.70	2.55	1.16	8.1	600	n/a					
Mar	2.51	2.46	.81	16.2	743	n/a					
Apr	2.37	2.34	.44	7.4	720	n/a					
May	2.33	2.30	.35	3.3	741	n/a					
Jun	2.39	2.35	.46	4.6	718	n/a					
Jul	2.39	2.37	.36	5.4	744	n/a					
Aug	2.44	2.39	.56	7.0	738	n/a					
Sep	2.19	2.17	.36	4.7	719	n/a					
Oct	2.28	2.26	.30	2.9	741	n/a					
Nov	2.44	2.40	.44	3.3	716	n/a					
Dec	2.65	2.59	.72	7.1	744	n/a					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	1.1	1.8	2.0	2.0	2.1	2.3	2.5	2.8	3.2	5.0	18.3
-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
1996	2.42	2.37	.62	17.2	8667	n/a					
-----											
n/a - not applicable											

n/a - not applicable

\* - no data

THC Summary Statistics for 1996  
Calgary Central Monitoring Station  
Units are PPM (parts per million)

No guidelines											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	1.8	1.9	1.9	2.0	2.1	2.2	2.4	2.7	3.0	3.5	4.4
Spring	1.8	1.9	1.9	2.0	2.0	2.1	2.2	2.4	2.5	3.3	5.2
Summer	1.6	1.7	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	3.2
Autumn	1.7	1.7	1.8	1.8	1.9	2.0	2.1	2.3	2.5	2.9	3.9
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	1.9	1.9	2.0	2.0	2.1	2.3	2.6	2.8	3.2	3.6	4.4
Feb	1.9	1.9	2.0	2.0	2.1	2.2	2.4	2.7	3.0	3.5	4.4
Mar	1.8	1.9	2.0	2.0	2.1	2.2	2.3	2.5	2.8	3.9	5.2
Apr	1.8	1.8	1.9	2.0	2.0	2.1	2.2	2.3	2.5	2.7	2.9
May	1.9	1.9	2.0	2.0	2.0	2.1	2.2	2.2	2.3	2.5	2.6
Jun	1.9	1.9	1.9	2.0	2.0	2.1	2.1	2.2	2.3	2.4	2.7
Jul	1.7	1.7	1.8	1.9	2.0	2.0	2.1	2.2	2.3	2.4	3.2
Aug	1.6	1.6	1.7	1.7	1.8	1.8	1.9	2.1	2.2	2.4	2.9
Sep	1.7	1.7	1.7	1.8	1.8	1.9	2.0	2.1	2.1	2.3	2.7
Oct	1.7	1.7	1.8	1.8	1.9	2.0	2.1	2.2	2.3	2.8	3.5
Nov	1.8	1.8	1.9	1.9	2.0	2.1	2.3	2.5	2.8	3.1	3.9
Dec	1.8	1.8	1.9	1.9	2.0	2.1	2.3	2.4	2.6	3.3	4.0
-----BY MONTH-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Jan	2.39	2.37	.37	2.5	687	n/a					
Feb	2.33	2.31	.33	2.5	693	n/a					
Mar	2.26	2.24	.36	3.4	733	n/a					
Apr	2.11	2.10	.17	1.1	715	n/a					
May	2.10	2.10	.11	.7	741	n/a					
Jun	2.08	2.08	.11	.8	716	n/a					
Jul	2.04	2.03	.14	1.5	742	n/a					
Aug	1.88	1.87	.16	1.3	740	n/a					
Sep	1.90	1.90	.13	1.0	716	n/a					
Oct	2.01	2.00	.19	1.8	729	n/a					
Nov	2.18	2.17	.27	2.1	720	n/a					
Dec	2.18	2.17	.26	2.2	730	n/a					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.4	2.6	3.2	5.2
-----BY YEAR-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
1996	2.12	2.11	.28	3.6	8662	n/a					
n/a - not applicable											

n/a - not applicable

\* - no data

THC Summary Statistics for 1996  
 Calgary Northwest Monitoring Station  
 Units are PPM (parts per million)

No guidelines											
BY SEASON											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	1.8	1.8	1.9	2.0	2.1	2.2	2.4	2.6	2.7	3.0	3.6
Spring	1.6	1.6	1.7	1.7	1.8	1.9	2.0	2.2	2.4	2.6	3.3
Summer	1.5	1.6	1.6	1.7	1.8	1.8	1.9	2.0	2.1	2.2	2.6
Autumn	1.7	1.8	1.8	1.9	2.0	2.1	2.2	2.4	2.5	2.7	3.2
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Winter	2.25	2.24	.25	1.8	2172	n/a					
Spring	1.95	1.94	.21	1.7	2122	n/a					
Summer	1.85	1.84	.14	1.1	2194	n/a					
Autumn	2.12	2.11	.21	1.5	2169	n/a					
BY MONTH											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	1.8	1.9	1.9	2.0	2.2	2.4	2.5	2.7	2.7	3.4	3.5
Feb	1.8	1.8	1.9	1.9	2.0	2.1	2.3	2.4	2.6	2.9	3.5
Mar	1.8	1.8	1.9	1.9	2.0	2.1	2.2	2.5	2.5	2.8	3.3
Apr	1.6	1.6	1.6	1.7	1.7	1.8	1.9	2.1	2.1	2.3	2.4
May	1.7	1.7	1.8	1.8	1.8	1.9	1.9	2.0	2.0	2.3	2.4
Jun	1.5	1.5	1.6	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.2
Jul	1.5	1.5	1.6	1.7	1.7	1.8	1.9	2.0	2.1	2.2	2.4
Aug	1.6	1.6	1.7	1.7	1.8	1.9	2.0	2.0	2.1	2.3	2.6
Sep	1.7	1.7	1.8	1.8	1.9	2.0	2.0	2.2	2.2	2.3	2.5
Oct	1.7	1.8	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.8	3.2
Nov	1.8	1.9	2.0	2.0	2.1	2.2	2.4	2.5	2.6	2.8	3.2
Dec	1.8	1.8	1.9	2.0	2.0	2.2	2.3	2.5	2.6	2.8	3.6
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Jan	2.38	2.36	.26	1.7	737	n/a					
Feb	2.17	2.16	.22	1.7	692	n/a					
Mar	2.14	2.13	.22	1.5	679	n/a					
Apr	1.84	1.83	.15	.8	713	n/a					
May	1.88	1.88	.10	.7	730	n/a					
Jun	1.82	1.82	.14	.7	720	n/a					
Jul	1.85	1.84	.14	.9	734	n/a					
Aug	1.87	1.87	.14	1.0	740	n/a					
Sep	1.98	1.97	.13	.8	714	n/a					
Oct	2.11	2.10	.19	1.5	738	n/a					
Nov	2.27	2.26	.20	1.4	717	n/a					
Dec	2.20	2.19	.21	1.8	743	n/a					
BY YEAR											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	1.5	1.6	1.7	1.8	1.9	2.0	2.2	2.4	2.5	2.7	3.6
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
1996	2.04	2.03	.26	2.1	8657	n/a					
n/a - not applicable				* - no data							

n/a - not applicable

\* - no data

THC Summary Statistics for 1996  
 Calgary East Monitoring Station  
 Units are PPM (parts per million)

No guidelines											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	1.8	1.9	2.0	2.1	2.2	2.4	2.7	3.1	3.5	4.3	5.6
Spring	1.6	1.7	1.8	1.8	1.9	2.0	2.2	2.4	2.7	3.5	5.4
Summer	1.6	1.8	1.9	1.9	1.9	2.0	2.1	2.3	2.4	2.7	3.5
Autumn	1.8	1.8	1.9	2.0	2.0	2.2	2.4	2.6	2.8	3.3	5.0
-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Winter	2.52	2.48	.49	3.8	2174	n/a					
Spring	2.11	2.09	.35	3.8	2178	n/a					
Summer	2.07	2.06	.19	1.9	2135	n/a					
Autumn	2.25	2.23	.31	3.2	2134	n/a					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	1.9	2.0	2.1	2.1	2.2	2.5	2.8	3.2	3.5	4.3	5.4
Feb	1.8	1.9	2.0	2.0	2.2	2.4	2.8	3.4	3.9	4.5	5.6
Mar	1.8	1.8	1.9	2.0	2.1	2.2	2.4	2.8	3.1	4.3	5.4
Apr	1.6	1.7	1.8	1.8	1.9	2.0	2.1	2.3	2.5	2.9	4.0
May	1.7	1.7	1.8	1.8	1.9	2.0	2.1	2.2	2.3	2.9	3.5
Jun	1.6	1.7	1.8	1.8	1.9	2.0	2.1	2.2	2.3	2.7	2.9
Jul	1.8	1.9	1.9	1.9	2.0	2.0	2.1	2.3	2.4	2.6	3.0
Aug	1.8	1.9	1.9	1.9	2.0	2.0	2.2	2.4	2.5	2.9	3.5
Sep	1.8	1.8	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.7	4.3
Oct	1.9	1.9	1.9	2.0	2.0	2.2	2.4	2.6	2.8	3.3	5.0
Nov	1.9	2.0	2.0	2.1	2.2	2.3	2.5	2.8	3.0	3.6	4.7
Dec	1.9	1.9	1.9	2.0	2.2	2.4	2.5	2.8	3.1	3.9	4.8
-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Jan	2.57	2.54	.48	3.5	744	n/a					
Feb	2.57	2.51	.58	3.8	687	n/a					
Mar	2.31	2.28	.44	3.6	731	n/a					
Apr	2.02	2.01	.25	2.4	716	n/a					
May	2.00	1.99	.21	1.8	731	n/a					
Jun	2.01	2.00	.18	1.3	686	n/a					
Jul	2.07	2.06	.16	1.2	705	n/a					
Aug	2.11	2.10	.22	1.7	744	n/a					
Sep	2.09	2.08	.19	2.5	715	n/a					
Oct	2.25	2.23	.30	3.1	699	n/a					
Nov	2.41	2.39	.33	2.8	720	n/a					
Dec	2.41	2.39	.37	2.9	743	n/a					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	1.6	1.8	1.8	1.9	2.0	2.1	2.4	2.7	3.0	3.8	5.6
-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
1996	2.24	2.21	.39	4.0	8621	n/a					
-----											
n/a - not applicable                      * - no data											

THC Summary Statistics for 1996  
Fort Saskatchewan Monitoring Station  
Units are PPM (parts per million)

No guidelines											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	1.8	1.8	1.9	2.0	2.0	2.2	2.7	3.2	3.4	3.9	5.7
Spring	1.0	1.7	1.8	1.8	1.9	1.9	2.0	2.3	2.5	3.1	5.8
Summer	1.5	1.6	1.7	1.7	1.7	1.8	1.9	2.1	2.3	2.8	3.9
Autumn	1.7	1.7	1.7	1.8	1.9	2.0	2.1	2.5	2.9	3.7	4.3
-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Winter	2.42	2.38	.49	3.9	2183	n/a					
Spring	2.02	2.00	.29	4.8	2206	n/a					
Summer	1.85	1.84	.22	2.4	2194	n/a					
Autumn	2.09	2.07	.38	2.6	2139	n/a					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	1.8	1.9	1.9	2.0	2.1	2.3	2.8	3.2	3.4	3.8	4.5
Feb	1.8	1.8	1.9	2.0	2.1	2.3	2.9	3.3	3.5	4.2	5.7
Mar	1.8	1.8	1.9	1.9	1.9	2.0	2.2	2.5	2.8	3.9	5.8
Apr	1.0	1.7	1.8	1.8	1.9	1.9	2.0	2.2	2.3	2.9	4.5
May	1.7	1.7	1.8	1.8	1.8	1.9	2.0	2.1	2.2	2.5	3.0
Jun	1.7	1.7	1.7	1.7	1.8	1.8	1.9	2.1	2.3	2.8	3.5
Jul	1.6	1.6	1.7	1.7	1.7	1.7	1.8	2.0	2.2	2.6	3.1
Aug	1.5	1.6	1.6	1.7	1.7	1.8	1.9	2.2	2.4	2.9	3.9
Sep	1.7	1.7	1.7	1.7	1.7	1.9	2.0	2.1	2.2	3.0	3.9
Oct	1.8	1.9	1.9	1.9	2.0	2.1	2.2	2.3	2.5	3.1	3.7
Nov	1.8	1.8	1.9	1.9	2.0	2.1	2.4	3.0	3.4	4.0	4.3
Dec	1.8	1.8	1.9	1.9	2.0	2.2	2.5	3.1	3.3	3.6	3.9
-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Jan	2.44	2.40	.48	2.7	743	n/a					
Feb	2.49	2.44	.56	3.9	696	n/a					
Mar	2.14	2.12	.38	4.0	743	n/a					
Apr	1.99	1.98	.23	3.5	719	n/a					
May	1.92	1.91	.15	1.3	744	n/a					
Jun	1.89	1.88	.20	1.8	719	n/a					
Jul	1.81	1.80	.19	1.5	731	n/a					
Aug	1.86	1.84	.27	2.4	744	n/a					
Sep	1.90	1.88	.24	2.2	720	n/a					
Oct	2.11	2.10	.23	1.9	699	n/a					
Nov	2.27	2.23	.49	2.5	720	n/a					
Dec	2.33	2.30	.43	2.1	744	n/a					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	1.0	1.7	1.7	1.7	1.8	2.0	2.2	2.6	3.0	3.6	5.8
-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
1996	2.09	2.06	.41	4.8	8722	n/a					
-----											
n/a - not applicable				* - no data							

n/a - not applicable

\* - no data



THC Summary Statistics for 1996  
 Fort McMurray Monitoring Station  
 Units are PPM (parts per million)

No guidelines											
-----											
--BY SEASON--											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	1.4	1.5	1.7	1.9	2.1	2.2	2.4	2.5	2.6	2.9	3.8
Spring	1.1	1.5	1.7	1.7	1.9	2.1	2.1	2.2	2.3	2.4	2.6
Summer	1.2	1.3	1.5	1.6	1.8	2.0	2.4	2.8	3.0	3.4	3.7
Autumn	1.7	2.1	2.2	2.2	2.3	2.3	2.4	2.5	2.6	2.8	3.2
-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Winter	2.22	2.20	.26	2.4	2150	n/a					
Spring	2.02	2.01	.20	1.5	2139	n/a					
Summer	2.12	2.07	.48	2.5	2113	n/a					
Autumn	2.36	2.35	.14	1.5	2184	n/a					
-----											
--BY MONTH--											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	1.8	1.9	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.7	3.8
Feb	1.4	1.4	1.5	1.6	1.9	2.1	2.3	2.5	2.7	3.0	3.2
Mar	1.1	1.1	1.9	2.0	2.1	2.1	2.2	2.3	2.4	2.5	2.6
Apr	1.4	1.6	1.7	1.8	1.9	2.0	2.1	2.1	2.2	2.3	2.4
May	1.5	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.1	2.2	2.3
Jun	1.4	1.5	1.7	1.8	2.0	2.7	2.9	3.0	3.2	3.6	3.7
Jul	1.2	1.3	1.4	1.5	1.6	1.8	2.0	2.6	2.8	3.2	3.6
Aug	1.3	1.3	1.5	1.6	1.8	2.1	2.3	2.4	2.5	2.8	2.9
Sep	2.1	2.1	2.2	2.2	2.3	2.3	2.4	2.5	2.5	2.6	2.7
Oct	1.7	1.7	2.2	2.3	2.3	2.4	2.5	2.6	2.6	2.8	3.2
Nov	2.1	2.1	2.2	2.2	2.2	2.3	2.4	2.5	2.6	2.9	3.2
Dec	2.1	2.1	2.2	2.2	2.3	2.3	2.5	2.6	2.6	3.0	3.2
-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Jan	2.20	2.19	.17	2.0	728	n/a					
Feb	2.09	2.06	.34	1.8	678	n/a					
Mar	2.14	2.13	.20	1.5	706	n/a					
Apr	2.01	2.01	.14	1.0	700	n/a					
May	1.90	1.89	.17	.8	733	n/a					
Jun	2.48	2.42	.51	2.3	637	n/a					
Jul	1.89	1.85	.40	2.4	739	n/a					
Aug	2.05	2.03	.32	1.6	737	n/a					
Sep	2.34	2.34	.10	.6	720	n/a					
Oct	2.39	2.39	.16	1.5	744	n/a					
Nov	2.33	2.32	.14	1.1	720	n/a					
Dec	2.36	2.36	.16	1.1	744	n/a					
-----											
--BY YEAR--											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	1.1	1.4	1.6	1.8	2.0	2.2	2.4	2.5	2.7	3.0	3.8
-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
1996	2.18	2.16	.32	2.7	8586	n/a					
-----											
n/a - not applicable				* - no data							

n/a - not applicable

\* - no data

THC Summary Statistics for 1996  
Fort Mackay Monitoring Station  
Units are PPM (parts per million)

No guidelines											
-----BY SEASON-----											
SEASON	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Winter	1.2	1.3	1.5	1.6	1.7	2.0	2.2	2.5	2.7	3.2	3.9
Spring	1.4	1.6	1.7	1.7	1.8	1.8	1.9	2.0	2.2	2.6	3.4
Summer	1.4	1.5	1.6	1.7	1.7	1.8	2.0	2.1	2.3	2.7	3.7
Autumn	.9	1.3	1.6	1.6	1.8	1.8	2.0	2.3	2.5	2.9	3.8
-----											
SEASON	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Winter	1.99	1.96	.38	2.7	2104	n/a					
Spring	1.86	1.85	.18	2.0	1813	n/a					
Summer	1.87	1.86	.22	2.3	1955	n/a					
Autumn	1.91	1.89	.30	2.9	2119	n/a					
-----BY MONTH-----											
MONTH	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
Jan	1.3	1.3	1.4	1.4	1.5	1.7	2.0	2.2	2.4	2.6	2.9
Feb	1.5	1.5	1.7	1.9	2.0	2.2	2.4	2.7	2.8	3.2	3.8
Mar	1.4	1.6	1.7	1.7	1.8	1.9	2.0	2.1	2.3	2.6	3.0
Apr	1.5	1.5	1.7	1.7	1.8	1.8	1.9	2.0	2.1	2.7	3.4
May	1.6	1.6	1.7	1.7	1.8	1.8	1.8	1.9	2.0	2.5	2.6
Jun	1.4	1.5	1.5	1.6	1.7	1.8	1.8	1.9	2.0	2.4	2.5
Jul	1.6	1.6	1.7	1.7	1.8	1.8	1.9	2.1	2.2	2.4	3.4
Aug	1.5	1.5	1.6	1.7	1.8	1.9	2.1	2.2	2.5	2.9	3.7
Sep	.9	1.2	1.5	1.6	1.7	1.8	1.9	2.1	2.2	2.4	2.7
Oct	1.3	1.5	1.6	1.7	1.8	1.9	2.0	2.3	2.5	3.1	3.8
Nov	1.1	1.3	1.6	1.7	1.8	1.9	2.2	2.5	2.7	2.9	3.0
Dec	1.2	1.4	1.6	1.6	1.7	1.9	2.1	2.4	2.7	3.4	3.9
-----											
MONTH	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
Jan	1.78	1.75	.31	1.6	671	n/a					
Feb	2.22	2.20	.32	2.3	689	n/a					
Mar	1.91	1.90	.19	1.6	708	n/a					
Apr	1.84	1.83	.17	1.9	719	n/a					
May	1.82	1.82	.13	1.0	386	n/a					
Jun	1.76	1.76	.15	1.1	540	n/a					
Jul	1.87	1.86	.18	1.8	686	n/a					
Aug	1.94	1.93	.27	2.2	729	n/a					
Sep	1.80	1.79	.21	1.8	712	n/a					
Oct	1.94	1.92	.29	2.5	712	n/a					
Nov	2.00	1.98	.34	1.9	695	n/a					
Dec	1.97	1.95	.36	2.7	744	n/a					
-----BY YEAR-----											
YEAR	MIN	1%	5%	10%	25%	50%	75%	90%	95%	99%	MAX
1996	.9	1.4	1.6	1.6	1.7	1.8	2.0	2.3	2.5	2.9	3.9
-----											
YEAR	Arithmetic Mean	Geometric Mean	Arithmetic Std Dev	Range	N	Number of Exceedances					
1996	1.91	1.89	.29	3.0	7991	n/a					
-----											
n/a - not applicable				* - no data							

n/a - not applicable

\* - no data

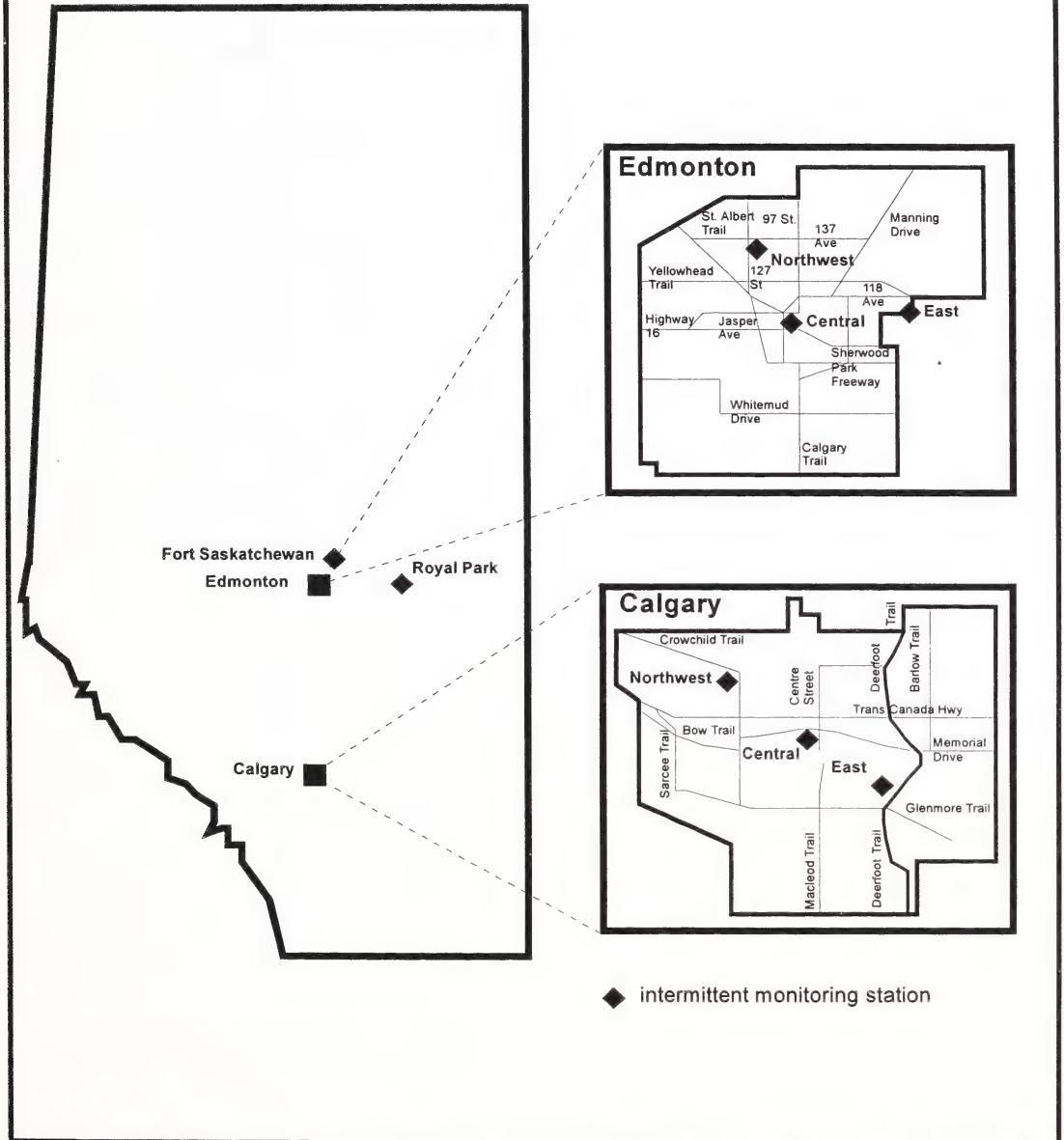
Annual Average Concentration									
Year: 1996									
Pollutant: THC [ppm]									
Year	EDMU	ERMU	EIMU	CDMU	CRMU	CIMU	Fort Sask.	Fort McMurray	Fort Mackay
1976	2.0	2.4	2.4	2.2	1.6	2.0	*	*	*
1977	2.0	2.1	2.6	2.4	2.0	2.0	*	*	*
1978	2.2	2.4	3.6	2.4	2.0	2.1	*	*	*
1979	1.8	2.6	2.5	2.9	2.1	2.0	*	*	*
1980	2.1	2.5	2.5	2.2	1.8	2.2	*	*	*
1981	2.2	2.5	2.8	2.1	1.8	2.3	b	b	*
1982	2.3	2.3	2.5	2.1	1.8	2.0	1.6	1.6a	*
1983	2.3	2.3	3.8	2.2	2.0	2.2	1.4	b	*
1984	2.4	2.2	3.7	2.2	1.9	2.2	1.5	1.9a	*
1985	2.9	2.1	2.0	2.1	1.9	2.1	1.3	1.7	*
1986	2.4	2.2	2.2	2.2	2.0	2.2	2.0	2.0	b
1987	2.5	2.1	1.8	2.3	2.0	2.0	2.1	1.9	1.9
1988	2.2	2.2	1.9	2.1	2.0	2.1	2.3	1.8	1.8
1989	2.1	2.2	1.8	2.2	2.0	2.1	1.8a	2.3	1.9
1990	2.0	2.2	1.6	2.1	2.0	2.0	2.0	1.6	1.9
1991	1.8	2.2	2.8	2.2	2.0	1.9	2.0	1.6	1.6
1992	2.5	2.0	2.4	2.2	1.9	2.0	2.1	1.9	1.8
1993	2.5	1.9	2.2	2.1	2.0	2.2	1.9	2.0	1.8
1994	2.3	2.2	2.3	2.2	2.1	2.2	2.0	2.2	1.7
1995	2.1	2.0	2.2	2.2	2.0	2.2	2.0	2.0	1.7
1996	2.2	2.0	2.4	2.1	2.0	2.2	2.0	2.2	1.9

a 50% to 75% of data available

b less than 50% of data available

\* no data available

# LOCATION OF INTERMITTENT AIR QUALITY MONITORING STATIONS



## Location of Intermittent Monitoring Stations

Station Name	Station Location
Edmonton Central (Downtown) Monitoring Unit (EDMU)	10255 - 104 St.
Edmonton Northwest (Residential) Monitoring Unit (ERMU)	13335 - 127 St.
Edmonton East (Industrial) Monitoring Unit (EIMU)	105 Ave. and 17 St.
Calgary Central (Downtown) Monitoring Unit (CDMU)	611 - 4 St. S.W.
Calgary Northwest (Residential) Monitoring Unit (CRMU)	39 St. and 29 Ave. N.W.
Calgary East (Industrial) Monitoring Unit (CIMU)	49 Ave. and 15 St. S.E.
Fort Saskatchewan Monitoring Unit (FTSK)	9209A - 96 Ave.
Royal Park (RLPK)	10 km northwest of Vegreville



TOTAL SUSPENDED PARTICULATES ( $\mu\text{g}/\text{m}^3$ )									
24 hour guideline = 100 $\mu\text{g}/\text{m}^3$									
EDMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK	% of Exceedances
1996	Jan	14.6	*	*	24.2	*	*	29.6	0%
	Feb	15.7	*	*	122.1	*	*	293.0	60%
	Mar	27.9	*	*	81.0	*	*	121.3	40%
	Apr	26.8	*	*	71.7	*	*	114.3	40%
	May	42.3	*	*	52.8	*	*	73.6	0%
	Jun	24.6	*	*	44.0	*	*	50.9	0%
	Jul	32.0	*	*	48.4	*	*	60.5	0%
	Aug	35.4	*	*	43.4	*	*	57.5	0%
	Sep	30.1	*	*	42.5	*	*	58.2	0%
	Oct	26.3	*	*	43.7	*	*	54.9	0%
	Nov	14.3	*	*	20.2	*	*	29.8	0%
	Dec	16.7	*	*	22.4	*	*	28.6	0%
ERMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK	% of Exceedances
1996	Jan	7.3	*	*	20.3	*	*	40.9	0%
	Feb	15.4	*	*	49.4	*	*	149.1	10%
	Mar	13.2	*	*	41.4	*	*	72.2	0%
	Apr	16.3	*	*	41.7	*	*	86.2	0%
	May	8.9	*	*	23.3	*	*	43.8	0%
	Jun	8.8	*	*	26.0	*	*	43.7	0%
	Jul	15.5	*	*	30.2	*	*	47.1	0%
	Aug	15.0	*	*	34.4	*	*	75.1	0%
	Sep	0.0	*	*	25.0	*	*	61.8	0%
	Oct	20.7	*	*	37.2	*	*	61.5	0%
	Nov	9.4	*	*	23.2	*	*	57.0	0%
	Dec	17.8	*	*	31.0	*	*	52.0	0%
EIMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK	% of Exceedances
1996	Jan	22.2	*	*	31.8	*	*	38.7	0%
	Feb	26.8	*	*	50.1	*	*	121.1	20%
	Mar	23.2	*	*	44.7	*	*	72.4	0%
	Apr	26.8	*	*	60.2	*	*	155.6	20%
	May	15.2	*	*	47.5	*	*	71.4	0%
	Jun	25.3	*	*	55.8	*	*	86.6	0%
	Jul	20.1	*	*	52.4	*	*	101.2	20%
	Aug	42.6	*	*	52.9	*	*	66.1	0%
	Sep	15.3	*	*	41.0	*	*	80.0	0%
	Oct	29.4	*	*	56.1	*	*	87.7	0%
	Nov	8.1	*	*	36.1	*	*	65.4	0%
	Dec	16.8	*	*	42.6	*	*	68.0	0%
Average Annual Concentration									
Year		EDMU		ERMU		EIMU			
1980		98.2		81.7		70.2			
1981		98.1		62.8		64.2			
1982		69.5		49.2		59.3			
1983		62.1		53.5		47.3			
1984		71.7		48.2		47.3			
1985		51.7		38.6		43.2			
1986		83.9		43.5		50.1			
1987		72.7		45.5		49.9			
1988		63.3		39.6		51.6			
1989		55.4		42.6		46.0			
1990		63.2		47.3		52.1			
1991		50.2		40.0		41.3			
1992		58.1		42.3		49.8			
1993		59.0		47.0		63.7			
1994		53.9		44.5		55.3			
1995		46.4		40.4		43.8			
1996		51.2		32.0		47.9			

\* - Data not available

a - &gt;50 to &lt;75% operational and may not be representative

b - Below 50% operational and results not representative

**TOTAL SUSPENDED PARTICULATES ( $\mu\text{g}/\text{m}^3$ )**

24 hour guideline = 100  $\mu\text{g}/\text{m}^3$

CDMU 1996		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK	% of Exceedances
	Jan	15.4	*	*	44.7	*	*	86.8	0%
	Feb	26.5	*	*	47.5	*	*	72.5	0%
	Mar	21.9	*	*	42.3	*	*	88.5	0%
	Apr	28.6	*	*	78.5	*	*	135.7	40%
	May	24.0	*	*	49.2	*	*	82.9	0%
	Jun	26.0	*	*	41.7	*	*	61.5	0%
	Jul	19.9	*	*	51.8	*	*	69.6	0%
	Aug	32.4	*	*	48.4	*	*	76.4	0%
	Sep	13.4	*	*	42.1	*	*	100.2	20%
	Oct	26.0	*	*	46.8	*	*	67.9	0%
	Nov	18.2	*	*	32.9	*	*	54.4	0%
	Dec	22.1	*	*	44.3	*	*	96.8	0%
CRMU 1996		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK	% of Exceedances
	Jan	11.7	*	*	21.5	*	*	55.4	0%
	Feb	19.6	*	*	22.8	*	*	27.0	0%
	Mar	9.5	*	*	27.5	*	*	46.6	0%
	Apr	28.1	*	*	43.0	*	*	59.9	0%
	May	17.0	*	*	40.3	*	*	81.4	0%
	Jun	18.4	*	*	30.6	*	*	51.4	0%
	Jul	29.0	*	*	35.0	*	*	40.8	0%
	Aug	26.0	*	*	42.6	*	*	66.5	0%
	Sep	8.4	*	*	26.7	*	*	77.6	0%
	Oct	14.8	*	*	27.1	*	*	33.2	0%
	Nov	13.7	*	*	22.2	*	*	26.5	0%
	Dec	14.9	*	*	18.9	*	*	28.7	0%
CIMU 1996		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK	% of Exceedances
	Jan	54.1	*	*	95.4	*	*	191.7	20%
	Feb	44.1	*	*	77.6	*	*	129.9	25%
	Mar	40.5	*	*	69.5	*	*	106.2	20%
	Apr	27.6	*	*	102.1	*	*	190.8	40%
	May	65.2	*	*	92.5	*	*	113.7	40%
	Jun	40.4	*	*	96.6	*	*	147.6	60%
	Jul	52.2	*	*	87.3	*	*	134.7	40%
	Aug	38.9	*	*	84.5	*	*	123.5	33%
	Sep	36.3	*	*	87.4	*	*	244.7	20%
	Oct	43.0	*	*	88.0	*	*	124.6	40%
	Nov	19.0	*	*	65.8	*	*	100.8	20%
	Dec	24.1	*	*	52.2	*	*	73.6	0%
Average Annual Concentration									
	Year	CDMU		CRMU				CIMU	
	1980	165.0		70.4				150.0	
	1981	147.0		69.3				133.0	
	1982	117.0		48.7				98.1	
	1983	80.7		39.4				81.7	
	1984	72.1		40.6				70.0	
	1985	59.1		38.2				62.5	
	1986	79.5		49.5				83.4	
	1987	85.3		47.9				75.6	
	1988	76.8		38.7				71.1	
	1989	62.1		34.8				68.2	
	1990	62.4		41.2				73.9	
	1991	57.3		36.9				74.2	
	1992	48.5		36.6				70.7	
	1993	54.9		35.2				81.4	
	1994	55.5		33.9				80.7	
	1995	51.3		29.0				77.3	
	1996	47.5		30.2				83.4	

\* - Not available.

a - >50 to <75% operational and may not be representative.

b - Below 50% operational and results not representative.

**TOTAL SUSPENDED PARTICULATES ( $\mu\text{g}/\text{m}^3$ )**

24 hour guideline = 100  $\mu\text{g}/\text{m}^3$

		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK	% of Exceedances
FTSK 1996	Jan	0.0	*	*	11.7	*	*	28.1	0%
	Feb	11.9	*	*	45.8	*	*	114.7	20%
	Mar	13.3	*	*	33.8	*	*	72.8	0%
	Apr	8.6	*	*	18.8	*	*	31.2	0%
	May	9.8	*	*	18.7	*	*	25.7	0%
	Jun	5.7	*	*	16.9	*	*	21.8	0%
	Jul	9.1	*	*	18.2	*	*	24.6	0%
	Aug	13.8	*	*	21.2	*	*	32.0	0%
	Sep	8.2	*	*	18.7	*	*	41.9	0%
	Oct	13.3	*	*	19.9	*	*	27.7	0%
	Nov	5.9	*	*	16.8	*	*	27.8	0%
	Dec	11.0	*	*	20.2	*	*	40.2	0%
RLPK 1996	Jan	0.4	*	*	4.3	*	*	8.0	0%
	Feb	1.5	*	*	11.6	*	*	19.1	0%
	Mar	9.8	*	*	19.6	*	*	42.3	0%
	Apr	15.4	*	*	20.5	*	*	25.1	0%
	May	11.9	*	*	19.4	*	*	33.4	0%
	Jun	3.7	*	*	27.7	*	*	66.9	0%
	Jul	9.9	*	*	19.1	*	*	25.3	0%
	Aug	10.7	*	*	28.6	*	*	53.8	0%
	Sep	4.4	*	*	21.8	*	*	60.3	0%
	Oct	14.6	*	*	28.0	*	*	47.0	0%
	Nov	3.3	*	*	8.0	*	*	13.5	0%
	Dec	7.6	*	*	10.8	*	*	18.8	0%

**Average Annual Concentration**

Year	Ellerslie	Fort Sask.	Royal Park
1982	*	35.3	*
1983	*	34.4	*
1984	*	41.2	*
1985	14.3	30.7	*
1986	24.7	36.3	*
1987	28.5	42.6	*
1988	27.1	33.9	*
1989	20.8	28.5a	*
1990	22.0	30.6	*
1991	26.2	26.3	*
1992	*	28.1	*
1993	*	36.5	29.2
1994	*	28.3	24.6
1995	*	23.8	19.9
1996	*	21.8	19.1

\* - Data not available

a - >50 to <75% operational and may not be representative

b - Below 50% operational and results not representative.



BENZO(A)PYRENE (ng/m<sup>3</sup>)

EDMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
1996	Jan	0.14	*	*	0.43	*	*	1.03
	Feb	0.16	*	*	0.59	*	*	1.09
	Mar	0.07	*	*	0.15	*	*	0.24
	Apr	0.04	*	*	0.08	*	*	0.14
	May	0.00	*	*	0.08	*	*	0.17
	Jun	0.00	*	*	0.06	*	*	0.16
	Jul	0.05	*	*	0.08	*	*	0.10
	Aug	0.03	*	*	0.06	*	*	0.07
	Sep	0.05	*	*	0.10	*	*	0.15
	Oct	0.07	*	*	0.23	*	*	0.49
	Nov	0.06	*	*	0.19	*	*	0.34
	Dec	0.08	*	*	0.32	*	*	0.64
ERMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
1996	Jan	0.00	*	*	0.39	*	*	1.01
	Feb	0.20	*	*	0.45	*	*	0.82
	Mar	0.03	*	*	0.14	*	*	0.32
	Apr	0.00	*	*	0.09	*	*	0.17
	May	0.00	*	*	0.00	*	*	0.00
	Jun	0.00	*	*	0.06	*	*	0.12
	Jul	0.02	*	*	0.05	*	*	0.09
	Aug	0.03	*	*	0.09	*	*	0.30
	Sep	0.00	*	*	0.04	*	*	0.09
	Oct	0.08	*	*	0.26	*	*	0.45
	Nov	0.03	*	*	0.50	*	*	1.30
	Dec	0.13	*	*	0.64	*	*	1.12
EIMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
1996	Jan	0.08	*	*	0.19	*	*	0.40
	Feb	0.00	*	*	0.18	*	*	0.39
	Mar	0.05	*	*	0.16	*	*	0.53
	Apr	0.03	*	*	0.04	*	*	0.06
	May	0.00	*	*	0.02	*	*	0.08
	Jun	0.00	*	*	0.06	*	*	0.17
	Jul	0.00	*	*	0.03	*	*	0.05
	Aug	0.02	*	*	0.04	*	*	0.07
	Sep	0.00	*	*	0.00	*	*	0.00
	Oct	0.03	*	*	0.09	*	*	0.14
	Nov	0.02	*	*	0.25	*	*	0.46
	Dec	0.11	*	*	0.36	*	*	0.65
Average Annual Concentration								
Year		EDMU	ERMU		EIMU			
1982		0.22	0.11		0.07			
1983		0.20	0.10		0.05			
1984		0.25	0.14		0.11			
1985		0.15	0.09		0.06			
1986		0.38	0.17		0.07			
1987		0.18	0.13		0.07			
1988		0.52	0.21		0.09			
1989		0.27	0.31		0.08			
1990		0.27	0.25		0.05			
1991		0.13	0.12		0.02			
1992		0.15	0.10		0.04			
1993		0.24	0.19		0.09			
1994		0.37	0.42		0.18			
1995		0.20	0.24		0.12			
1996		0.20	0.22		0.11			

\* - Data not available

a - &gt;50 to &lt;75% operational and may not be representative

b - Below 50% operational and results not representative



BENZO(A)PYRENE (ng/m<sup>3</sup>)

CDMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
1996	Jan	0.00	*	*	0.21	*	*	0.62
	Feb	0.07	*	*	0.27	*	*	0.63
	Mar	0.07	*	*	0.09	*	*	0.12
	Apr	0.00	*	*	0.08	*	*	0.13
	May	0.00	*	*	0.04	*	*	0.10
	Jun	0.00	*	*	0.03	*	*	0.07
	Jul	0.02	*	*	0.05	*	*	0.07
	Aug	0.01	*	*	0.06	*	*	0.11
	Sep	0.08	*	*	0.12	*	*	0.14
	Oct	0.10	*	*	0.21	*	*	0.41
	Nov	0.07	*	*	0.46	*	*	1.40
	Dec	0.07	*	*	0.46	*	*	1.40
CRMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
1996	Jan	0.00	*	*	0.17	*	*	0.43
	Feb	0.00	*	*	0.18	*	*	0.37
	Mar	0.00	*	*	0.02	*	*	0.04
	Apr	0.00	*	*	0.04	*	*	0.06
	May	0.00	*	*	0.00	*	*	0.00
	Jun	0.00	*	*	0.00	*	*	0.00
	Jul	0.01	*	*	0.02	*	*	0.02
	Aug	0.00	*	*	0.02	*	*	0.02
	Sep	0.00	*	*	0.03	*	*	0.05
	Oct	0.06	*	*	0.11	*	*	0.30
	Nov	0.04	*	*	0.11	*	*	0.25
	Dec	0.00	*	*	0.13	*	*	0.34
CIMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
1996	Jan	0.11	*	*	0.56	*	*	1.32
	Feb	0.20	*	*	0.42	*	*	0.93
	Mar	0.03	*	*	0.09	*	*	0.17
	Apr	0.00	*	*	0.09	*	*	0.16
	May	0.00	*	*	0.00	*	*	0.00
	Jun	0.00	*	*	0.03	*	*	0.09
	Jul	0.03	*	*	0.15	*	*	0.51
	Aug	0.01	*	*	0.07	*	*	0.10
	Sep	0.06	*	*	0.14	*	*	0.35
	Oct	0.14	*	*	0.26	*	*	0.46
	Nov	0.02	*	*	0.38	*	*	1.10
	Dec	0.08	*	*	0.40	*	*	0.74
Average Annual Concentration								
	Year	CDMU		CRMU				CIMU
	1982	0.44		0.05				0.15
	1983	0.31		0.06				0.15
	1984	0.25		0.07				0.19
	1985	0.12		0.03				0.10
	1986	0.21		0.06				0.18
	1987	0.27		0.07				0.14
	1988	0.47		0.09				0.26
	1989	0.41		0.09				0.24
	1990	0.18		0.03				0.11
	1991	0.13		0.03				0.12
	1992	0.10		0.04				0.09
	1993	0.19		0.05				0.29
	1994	0.37		0.20				0.24
	1995	0.17		0.09				0.21
	1996	0.17		0.07				0.21

\* - Not available.

a - &gt;50 to &lt;75% operational and may not be representative.

b - Below 50% operational and results not representative.

BENZO(A)PYRENE (ng/m<sup>3</sup>)

FTSK 1996		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
	Jan	0.00	*	*	0.21	*	*	0.45
	Feb	0.04	*	*	0.15	*	*	0.26
	Mar	0.00	*	*	0.03	*	*	0.09
	Apr	0.00	*	*	0.02	*	*	0.05
	May	0.00	*	*	0.00	*	*	0.00
	Jun	0.00	*	*	0.01	*	*	0.03
	Jul	0.00	*	*	0.01	*	*	0.01
	Aug	0.00	*	*	0.01	*	*	0.03
	Sep	0.00	*	*	0.00	*	*	0.00
	Oct	0.02	*	*	0.07	*	*	0.12
	Nov	0.03	*	*	0.11	*	*	0.26
	Dec	0.05	*	*	0.19	*	*	0.45

RLPK 1996		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
	Jan	0.00	*	*	0.00	*	*	0.00
	Feb	0.00	*	*	0.01	*	*	0.05
	Mar	0.00	*	*	0.00	*	*	0.00
	Apr	0.00	*	*	0.01	*	*	0.03
	May	0.00	*	*	0.00	*	*	0.00
	Jun	0.00	*	*	0.00	*	*	0.00
	Jul	0.00	*	*	0.00	*	*	0.01
	Aug	0.00	*	*	0.00	*	*	0.00
	Sep	0.00	*	*	0.00	*	*	0.00
	Oct	0.00	*	*	0.01	*	*	0.03
	Nov	0.00	*	*	0.02	*	*	0.05
	Dec	0.00	*	*	0.03	*	*	0.08

Average Annual Concentration			
Year	Ellerslie	Fort Sask.	Royal Park
1982	*	0.03	*
1983	*	0.03	*
1984	*	0.10	*
1985	0.01	0.03	*
1986	0.03	0.06	*
1987	0.02	0.05	*
1988	0.07	0.10	*
1989	0.03	0.03	*
1990	0.01	0.03	*
1991	0.01	0.03	*
1992	*	0.04	*
1993	*	0.06	*
1994	*	0.16	0.01
1995	*	0.09	0.01
1996	*	0.07	0.01

\* - Not available.

a - >50 to <75% operational and may not be representative.

b - Below 50% operational and results not representative.



CHRYSENE (ng/m<sup>3</sup>)

EDMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
1996	Jan	0.22	*	*	0.36	*	*	0.64
	Feb	0.31	*	*	0.78	*	*	1.31
	Mar	0.11	*	*	0.21	*	*	0.34
	Apr	0.07	*	*	0.15	*	*	0.26
	May	0.12	*	*	0.18	*	*	0.25
	Jun	0.07	*	*	0.10	*	*	0.15
	Jul	0.06	*	*	0.10	*	*	0.16
	Aug	0.06	*	*	0.08	*	*	0.10
	Sep	0.06	*	*	0.12	*	*	0.19
	Oct	0.08	*	*	0.27	*	*	0.56
	Nov	0.10	*	*	0.27	*	*	0.40
	Dec	0.15	*	*	0.29	*	*	0.46
ERMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
1996	Jan	0.19	*	*	0.51	*	*	1.03
	Feb	0.29	*	*	0.59	*	*	0.82
	Mar	0.07	*	*	0.18	*	*	0.26
	Apr	0.00	*	*	0.09	*	*	0.20
	May	0.04	*	*	0.06	*	*	0.11
	Jun	0.03	*	*	0.06	*	*	0.12
	Jul	0.03	*	*	0.05	*	*	0.08
	Aug	0.04	*	*	0.07	*	*	0.14
	Sep	0.00	*	*	0.05	*	*	0.12
	Oct	0.14	*	*	0.27	*	*	0.47
	Nov	0.09	*	*	0.55	*	*	1.10
	Dec	0.23	*	*	0.62	*	*	0.97
EIMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
1996	Jan	0.17	*	*	0.54	*	*	1.12
	Feb	0.13	*	*	0.39	*	*	0.73
	Mar	0.11	*	*	0.25	*	*	0.51
	Apr	0.05	*	*	0.09	*	*	0.17
	May	0.03	*	*	0.09	*	*	0.19
	Jun	0.04	*	*	0.07	*	*	0.14
	Jul	0.02	*	*	0.05	*	*	0.10
	Aug	0.04	*	*	0.07	*	*	0.10
	Sep	0.00	*	*	0.04	*	*	0.09
	Oct	0.04	*	*	0.14	*	*	0.21
	Nov	0.05	*	*	0.35	*	*	0.58
	Dec	0.24	*	*	0.54	*	*	0.84
Average Annual Concentration								
Year		EDMU			ERMU			EIMU
1996		0.24			0.26			0.21

\* - Not available.

a - &gt;50 to &lt;75% operational and may not be representative.

b - Below 50% operational and results not representative.

CHRYSENE (ng/m<sup>3</sup>)

CDMU 1996		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
	Jan	0.23	*	*	0.47	*	*	0.84
	Feb	0.21	*	*	0.40	*	*	0.76
	Mar	0.09	*	*	0.14	*	*	0.21
	Apr	0.00	*	*	0.10	*	*	0.22
	May	0.10	*	*	0.12	*	*	0.15
	Jun	0.03	*	*	0.07	*	*	0.09
	Jul	0.04	*	*	0.08	*	*	0.10
	Aug	0.04	*	*	0.07	*	*	0.09
	Sep	0.12	*	*	0.13	*	*	0.16
	Oct	0.09	*	*	0.24	*	*	0.39
	Nov	0.13	*	*	0.32	*	*	0.62
	Dec	0.16	*	*	0.29	*	*	0.59
CRMU 1996		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
	Jan	0.08	*	*	0.33	*	*	0.70
	Feb	0.13	*	*	0.33	*	*	0.59
	Mar	0.00	*	*	0.04	*	*	0.08
	Apr	0.00	*	*	0.05	*	*	0.10
	May	0.00	*	*	0.02	*	*	0.05
	Jun	0.02	*	*	0.03	*	*	0.04
	Jul	0.02	*	*	0.03	*	*	0.04
	Aug	0.02	*	*	0.03	*	*	0.03
	Sep	0.04	*	*	0.05	*	*	0.07
	Oct	0.07	*	*	0.17	*	*	0.40
	Nov	0.10	*	*	0.25	*	*	0.49
	Dec	0.04	*	*	0.20	*	*	0.46
CIMU 1996		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
	Jan	0.42	*	*	0.87	*	*	1.70
	Feb	0.37	*	*	0.66	*	*	1.31
	Mar	0.14	*	*	0.19	*	*	0.25
	Apr	0.00	*	*	0.15	*	*	0.27
	May	0.09	*	*	0.16	*	*	0.21
	Jun	0.05	*	*	0.11	*	*	0.14
	Jul	0.06	*	*	0.23	*	*	0.61
	Aug	0.04	*	*	0.09	*	*	0.13
	Sep	0.11	*	*	0.18	*	*	0.33
	Oct	0.19	*	*	0.43	*	*	0.71
	Nov	0.06	*	*	0.48	*	*	1.20
	Dec	0.17	*	*	0.47	*	*	0.90
		Year 1996	Average Annual Concentration					
			CDMU		CRMU		CIMU	
			0.20		0.12		0.32	

\* - Not available.

a - &gt;50 to &lt;75% operational and may not be representative.

b - Below 50% operational and results not representative.



CHRYSENE (ng/m<sup>3</sup>)

FTSK 1996		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
	Jan	0.15	*	*	0.31	*	*	0.56
	Feb	0.10	*	*	0.35	*	*	0.64
	Mar	0.00	*	*	0.18	*	*	0.64
	Apr	0.00	*	*	0.04	*	*	0.09
	May	0.00	*	*	0.02	*	*	0.05
	Jun	0.01	*	*	0.02	*	*	0.03
	Jul	0.01	*	*	0.02	*	*	0.03
	Aug	0.02	*	*	0.03	*	*	0.05
	Sep	0.00	*	*	0.03	*	*	0.07
	Oct	0.04	*	*	0.09	*	*	0.14
	Nov	0.09	*	*	0.24	*	*	0.39
	Dec	0.09	*	*	0.30	*	*	0.56
RLPK 1996		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
	Jan	0.00	*	*	0.08	*	*	0.12
	Feb	0.00	*	*	0.09	*	*	0.18
	Mar	0.00	*	*	0.02	*	*	0.10
	Apr	0.00	*	*	0.00	*	*	0.00
	May	0.00	*	*	0.00	*	*	0.00
	Jun	0.00	*	*	0.00	*	*	0.01
	Jul	0.01	*	*	0.01	*	*	0.01
	Aug	0.00	*	*	0.01	*	*	0.02
	Sep	0.00	*	*	0.00	*	*	0.02
	Oct	0.02	*	*	0.04	*	*	0.07
	Nov	0.06	*	*	0.12	*	*	0.17
	Dec	0.06	*	*	0.11	*	*	0.17
Average Annual Concentration								
Year			Ellerslie			Fort Sask.		
1996			*			0.13		
						Royal Park		
						0.04		

\* - Not available.

a - >50 to <75% operational and may not be representative.

b - Below 50% operational and results not representative.



BENZO(B,K)FLUORANTHENE (ng/m<sup>3</sup>)

EDMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
1996	Jan	0.38	*	*	0.61	*	*	1.11
	Feb	0.51	*	*	1.17	*	*	1.87
	Mar	0.24	*	*	0.44	*	*	0.56
	Apr	0.13	*	*	0.27	*	*	0.44
	May	0.24	*	*	0.33	*	*	0.49
	Jun	0.16	*	*	0.29	*	*	0.52
	Jul	0.16	*	*	0.25	*	*	0.33
	Aug	0.12	*	*	0.17	*	*	0.22
	Sep	0.16	*	*	0.27	*	*	0.37
	Oct	0.11	*	*	0.23	*	*	0.41
	Nov	0.11	*	*	0.25	*	*	0.36
	Dec	0.17	*	*	0.32	*	*	0.47
ERMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
1996	Jan	0.27	*	*	0.82	*	*	1.58
	Feb	0.43	*	*	0.93	*	*	1.45
	Mar	0.12	*	*	0.42	*	*	0.80
	Apr	0.14	*	*	0.26	*	*	0.44
	May	0.00	*	*	0.04	*	*	0.27
	Jun	0.00	*	*	0.20	*	*	0.41
	Jul	0.05	*	*	0.15	*	*	0.24
	Aug	0.14	*	*	0.23	*	*	0.56
	Sep	0.00	*	*	0.15	*	*	0.36
	Oct	0.13	*	*	0.31	*	*	0.47
	Nov	0.09	*	*	0.49	*	*	0.93
	Dec	0.24	*	*	0.54	*	*	0.88
EIMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
1996	Jan	0.24	*	*	0.46	*	*	0.78
	Feb	0.17	*	*	0.48	*	*	0.76
	Mar	0.14	*	*	0.36	*	*	0.94
	Apr	0.08	*	*	0.12	*	*	0.17
	May	0.00	*	*	0.10	*	*	0.31
	Jun	0.07	*	*	0.20	*	*	0.50
	Jul	0.04	*	*	0.10	*	*	0.15
	Aug	0.08	*	*	0.12	*	*	0.24
	Sep	0.00	*	*	0.07	*	*	0.15
	Oct	0.06	*	*	0.13	*	*	0.20
	Nov	0.04	*	*	0.30	*	*	0.44
	Dec	0.19	*	*	0.40	*	*	0.63
Average Annual Concentration								
Year		EDMU		ERMU		EIMU		
1996		0.38		0.38		0.23		

\* - Not available.

a - &gt;50 to &lt;75% operational and may not be representative.

b - Below 50% operational and results not representative.

BENZO(B,K)FLUORANTHENE (ng/m<sup>3</sup>)

CDMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
1996	Jan	0.00	*	*	0.51	*	*	1.15
	Feb	0.36	*	*	0.65	*	*	1.15
	Mar	0.20	*	*	0.29	*	*	0.37
	Apr	0.16	*	*	0.30	*	*	0.41
	May	0.15	*	*	0.20	*	*	0.25
	Jun	0.10	*	*	0.17	*	*	0.21
	Jul	0.11	*	*	0.17	*	*	0.22
	Aug	0.06	*	*	0.15	*	*	0.24
	Sep	0.21	*	*	0.28	*	*	0.35
	Oct	0.13	*	*	0.23	*	*	0.34
	Nov	0.12	*	*	0.32	*	*	0.64
	Dec	0.15	*	*	0.28	*	*	0.61
CRMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
1996	Jan	0.19	*	*	0.52	*	*	1.06
	Feb	0.22	*	*	0.50	*	*	0.81
	Mar	0.00	*	*	0.11	*	*	0.18
	Apr	0.06	*	*	0.13	*	*	0.20
	May	0.00	*	*	0.00	*	*	0.00
	Jun	0.00	*	*	0.03	*	*	0.15
	Jul	0.04	*	*	0.07	*	*	0.12
	Aug	0.03	*	*	0.06	*	*	0.07
	Sep	0.10	*	*	0.12	*	*	0.16
	Oct	0.10	*	*	0.19	*	*	0.38
	Nov	0.11	*	*	0.21	*	*	0.41
	Dec	0.04	*	*	0.16	*	*	0.31
CIMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
1996	Jan	0.40	*	*	1.21	*	*	2.17
	Feb	0.61	*	*	1.00	*	*	1.85
	Mar	0.13	*	*	0.34	*	*	0.45
	Apr	0.00	*	*	0.32	*	*	0.61
	May	0.00	*	*	0.15	*	*	0.32
	Jun	0.18	*	*	0.27	*	*	0.31
	Jul	0.18	*	*	0.44	*	*	1.10
	Aug	0.07	*	*	0.21	*	*	0.27
	Sep	0.21	*	*	0.39	*	*	0.75
	Oct	0.00	*	*	0.28	*	*	0.44
	Nov	0.06	*	*	0.40	*	*	0.97
	Dec	0.14	*	*	0.38	*	*	0.63
Average Annual Concentration								
Year		CDMU		CRMU		CIMU		
1996		0.29		0.17		0.44		

\* - Not available.

a - >50 to <75% operational and may not be representative.

b - Below 50% operational and results not representative.

**BENZO(B,K)FLUORANTHENE (ng/m<sup>3</sup>)**

FTSK 1996		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
	Jan	0.21	*	*	0.47	*	*	0.82
	Feb	0.15	*	*	0.45	*	*	0.71
	Mar	0.00	*	*	0.11	*	*	0.27
	Apr	0.00	*	*	0.09	*	*	0.19
	May	0.00	*	*	0.00	*	*	0.00
	Jun	0.00	*	*	0.05	*	*	0.15
	Jul	0.02	*	*	0.03	*	*	0.05
	Aug	0.03	*	*	0.07	*	*	0.16
	Sep	0.00	*	*	0.04	*	*	0.11
	Oct	0.04	*	*	0.11	*	*	0.15
	Nov	0.07	*	*	0.19	*	*	0.34
	Dec	0.08	*	*	0.25	*	*	0.46
RLPK 1996		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
	Jan	0.00	*	*	0.06	*	*	0.19
	Feb	0.00	*	*	0.09	*	*	0.25
	Mar	0.00	*	*	0.02	*	*	0.12
	Apr	0.00	*	*	0.00	*	*	0.00
	May	0.00	*	*	0.00	*	*	0.00
	Jun	0.00	*	*	0.00	*	*	0.00
	Jul	0.00	*	*	0.01	*	*	0.02
	Aug	0.00	*	*	0.01	*	*	0.05
	Sep	0.00	*	*	0.00	*	*	0.00
	Oct	0.00	*	*	0.04	*	*	0.07
	Nov	0.03	*	*	0.08	*	*	0.11
	Dec	0.05	*	*	0.08	*	*	0.14
Average Annual Concentration								
Year		Ellerslie			Fort Sask.		Royal Park	
1996		*			0.15		0.03	

\* - Not available.

a - &gt;50 to &lt;75% operational and may not be representative.

b - Below 50% operational and results not representative.





BENZO(E)PYRENE (ng/m<sup>3</sup>)

EDMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
1996	Jan	*	*	*	*	*	*	*
	Feb	*	*	*	*	*	*	*
	Mar	*	*	*	*	*	*	*
	Apr	*	*	*	*	*	*	*
	May	*	*	*	*	*	*	*
	Jun	*	*	*	*	*	*	*
	Jul	*	*	*	*	*	*	*
	Aug	*	*	*	*	*	*	*
	Sep	*	*	*	*	*	*	*
	Oct	0.16	*	*	0.29	*	*	0.51
	Nov	0.14	*	*	0.34	*	*	0.54
	Dec	0.20	*	*	0.40	*	*	0.64
ERMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
1996	Jan	*	*	*	*	*	*	*
	Feb	*	*	*	*	*	*	*
	Mar	*	*	*	*	*	*	*
	Apr	*	*	*	*	*	*	*
	May	*	*	*	*	*	*	*
	Jun	*	*	*	*	*	*	*
	Jul	*	*	*	*	*	*	*
	Aug	*	*	*	*	*	*	*
	Sep	*	*	*	*	*	*	*
	Oct	0.18	*	*	0.41	*	*	0.63
	Nov	0.10	*	*	0.63	*	*	1.20
	Dec	0.28	*	*	0.70	*	*	1.18
EIMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
1996	Jan	*	*	*	*	*	*	*
	Feb	*	*	*	*	*	*	*
	Mar	*	*	*	*	*	*	*
	Apr	*	*	*	*	*	*	*
	May	*	*	*	*	*	*	*
	Jun	*	*	*	*	*	*	*
	Jul	*	*	*	*	*	*	*
	Aug	*	*	*	*	*	*	*
	Sep	*	*	*	*	*	*	*
	Oct	0.08	*	*	0.16	*	*	0.25
	Nov	0.04	*	*	0.31	*	*	0.46
	Dec	0.19	*	*	0.47	*	*	0.72
Average Annual Concentration								
Year		EDMU		ERMU		EIMU		
1996		0.34		0.58		0.32		

\* - Not available.

a - &gt;50 to &lt;75% operational and may not be representative.

b - Below 50% operational and results not representative.

BENZO(E)PYRENE (ng/m <sup>3</sup> )								
CDMU 1996		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
	Jan	*	*	*	*	*	*	*
	Feb	*	*	*	*	*	*	*
	Mar	*	*	*	*	*	*	*
	Apr	*	*	*	*	*	*	*
	May	*	*	*	*	*	*	*
	Jun	*	*	*	*	*	*	*
	Jul	*	*	*	*	*	*	*
	Aug	*	*	*	*	*	*	*
	Sep	*	*	*	*	*	*	*
	Oct	0.17	*	*	0.33	*	*	0.49
	Nov	0.15	*	*	0.56	*	*	1.40
	Dec	0.18	*	*	0.47	*	*	1.20
CRMU 1996		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
	Jan	*	*	*	*	*	*	*
	Feb	*	*	*	*	*	*	*
	Mar	*	*	*	*	*	*	*
	Apr	*	*	*	*	*	*	*
	May	*	*	*	*	*	*	*
	Jun	*	*	*	*	*	*	*
	Jul	*	*	*	*	*	*	*
	Aug	*	*	*	*	*	*	*
	Sep	*	*	*	*	*	*	*
	Oct	0.12	*	*	0.23	*	*	0.46
	Nov	0.13	*	*	0.23	*	*	0.44
	Dec	0.05	*	*	0.17	*	*	0.33
CIMU 1996		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
	Jan	*	*	*	*	*	*	*
	Feb	*	*	*	*	*	*	*
	Mar	*	*	*	*	*	*	*
	Apr	*	*	*	*	*	*	*
	May	*	*	*	*	*	*	*
	Jun	*	*	*	*	*	*	*
	Jul	*	*	*	*	*	*	*
	Aug	*	*	*	*	*	*	*
	Sep	*	*	*	*	*	*	*
	Oct	0.34	*	*	0.47	*	*	0.57
	Nov	0.07	*	*	0.48	*	*	1.20
	Dec	0.15	*	*	0.47	*	*	0.82
Average Annual Concentration								
		Year 1996	CDMU		CRMU		CIMU	
			0.45		0.21		0.47	

\* - Not available.

a - >50 to <75% operational and may not be representative.

b - Below 50% operational and results not representative.

**BENZO(E)PYRENE (ng/m<sup>3</sup>)**

FTSK 1996		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
	Jan	*	*	*	*	*	*	*
	Feb	*	*	*	*	*	*	*
	Mar	*	*	*	*	*	*	*
	Apr	*	*	*	*	*	*	*
	May	*	*	*	*	*	*	*
	Jun	*	*	*	*	*	*	*
	Jul	*	*	*	*	*	*	*
	Aug	*	*	*	*	*	*	*
	Sep	*	*	*	*	*	*	*
	Oct	0.05	*	*	0.13	*	*	0.19
	Nov	0.07	*	*	0.22	*	*	0.41
	Dec	0.09	*	*	0.27	*	*	0.50
RLPK 1996		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
	Jan	*	*	*	*	*	*	*
	Feb	*	*	*	*	*	*	*
	Mar	*	*	*	*	*	*	*
	Apr	*	*	*	*	*	*	*
	May	*	*	*	*	*	*	*
	Jun	*	*	*	*	*	*	*
	Jul	*	*	*	*	*	*	*
	Aug	*	*	*	*	*	*	*
	Sep	*	*	*	*	*	*	*
	Oct	0.00	*	*	0.04	*	*	0.07
	Nov	0.02	*	*	0.06	*	*	0.10
	Dec	0.04	*	*	0.07	*	*	0.12
		Year 1996	Average Annual Concentration					
			Ellerslie			Fort Sask.		
			*			0.21		
						Royal Park		
						0.06		

\* - Not available.

a - &gt;50 to &lt;75% operational and may not be representative.

b - Below 50% operational and results not representative.



BENZO(A)ANTHRACENE (ng/m<sup>3</sup>)

EDMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
1996	Jan	0.12	*	*	0.23	*	*	0.44
	Feb	0.15	*	*	0.48	*	*	0.83
	Mar	0.00	*	*	0.09	*	*	0.17
	Apr	0.00	*	*	0.00	*	*	0.00
	May	0.06	*	*	0.09	*	*	0.12
	Jun	0.04	*	*	0.06	*	*	0.08
	Jul	0.03	*	*	0.06	*	*	0.08
	Aug	0.03	*	*	0.04	*	*	0.06
	Sep	0.04	*	*	0.08	*	*	0.11
	Oct	0.04	*	*	0.18	*	*	0.42
	Nov	0.05	*	*	0.15	*	*	0.25
	Dec	0.07	*	*	0.18	*	*	0.31
ERMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
1996	Jan	0.11	*	*	0.38	*	*	0.94
	Feb	0.19	*	*	0.39	*	*	0.64
	Mar	0.00	*	*	0.08	*	*	0.14
	Apr	0.00	*	*	0.02	*	*	0.08
	May	0.00	*	*	0.00	*	*	0.04
	Jun	0.00	*	*	0.03	*	*	0.05
	Jul	0.01	*	*	0.02	*	*	0.04
	Aug	0.02	*	*	0.04	*	*	0.09
	Sep	0.00	*	*	0.03	*	*	0.06
	Oct	0.09	*	*	0.19	*	*	0.37
	Nov	0.03	*	*	0.39	*	*	0.89
	Dec	0.14	*	*	0.45	*	*	0.75
EIMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
1996	Jan	0.08	*	*	0.26	*	*	0.51
	Feb	0.05	*	*	0.19	*	*	0.41
	Mar	0.00	*	*	0.09	*	*	0.30
	Apr	0.00	*	*	0.00	*	*	0.00
	May	0.00	*	*	0.02	*	*	0.06
	Jun	0.01	*	*	0.03	*	*	0.08
	Jul	0.00	*	*	0.02	*	*	0.04
	Aug	0.01	*	*	0.03	*	*	0.04
	Sep	0.00	*	*	0.01	*	*	0.03
	Oct	0.02	*	*	0.06	*	*	0.10
	Nov	0.02	*	*	0.20	*	*	0.35
	Dec	0.10	*	*	0.30	*	*	0.48
Average Annual Concentration								
Year		EDMU			ERMU			EIMU
1996		0.13			0.17			0.10

\* - Not available.

a - &gt;50 to &lt;75% operational and may not be representative.

b - Below 50% operational and results not representative.



BENZO(A)ANTHRACENE (ng/m<sup>3</sup>)

CDMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
1996	Jan	0.00	*	*	0.16	*	*	0.45
	Feb	0.08	*	*	0.23	*	*	0.50
	Mar	0.00	*	*	0.04	*	*	0.08
	Apr	0.00	*	*	0.04	*	*	0.09
	May	0.03	*	*	0.05	*	*	0.07
	Jun	0.01	*	*	0.03	*	*	0.05
	Jul	0.02	*	*	0.04	*	*	0.05
	Aug	0.01	*	*	0.03	*	*	0.05
	Sep	0.06	*	*	0.08	*	*	0.11
	Oct	0.05	*	*	0.13	*	*	0.25
	Nov	0.05	*	*	0.19	*	*	0.41
	Dec	0.07	*	*	0.18	*	*	0.40
CRMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
1996	Jan	0.00	*	*	0.20	*	*	0.48
	Feb	0.06	*	*	0.16	*	*	0.32
	Mar	0.00	*	*	0.00	*	*	0.00
	Apr	0.00	*	*	0.00	*	*	0.00
	May	0.00	*	*	0.00	*	*	0.00
	Jun	0.00	*	*	0.01	*	*	0.02
	Jul	0.01	*	*	0.01	*	*	0.02
	Aug	0.00	*	*	0.01	*	*	0.01
	Sep	0.00	*	*	0.02	*	*	0.04
	Oct	0.04	*	*	0.08	*	*	0.23
	Nov	0.03	*	*	0.12	*	*	0.24
	Dec	0.02	*	*	0.11	*	*	0.28
CIMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
1996	Jan	0.16	*	*	0.46	*	*	0.90
	Feb	0.16	*	*	0.39	*	*	0.84
	Mar	0.00	*	*	0.01	*	*	0.07
	Apr	0.00	*	*	0.02	*	*	0.10
	May	0.00	*	*	0.03	*	*	0.07
	Jun	0.02	*	*	0.04	*	*	0.07
	Jul	0.03	*	*	0.13	*	*	0.46
	Aug	0.01	*	*	0.04	*	*	0.06
	Sep	0.04	*	*	0.10	*	*	0.20
	Oct	0.12	*	*	0.20	*	*	0.36
	Nov	0.02	*	*	0.29	*	*	0.83
	Dec	0.09	*	*	0.29	*	*	0.55
Average Annual Concentration								
Year		CDMU		CRMU		CIMU		
1996		0.10		0.06		0.16		

\* - Not available.

a - &gt;50 to &lt;75% operational and may not be representative.

b - Below 50% operational and results not representative.

BENZO(A)ANTHRACENE (ng/m<sup>3</sup>)

FTSK 1996		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
	Jan	0.07	*	*	0.18	*	*	0.33
	Feb	0.04	*	*	0.18	*	*	0.34
	Mar	0.00	*	*	0.01	*	*	0.04
	Apr	0.00	*	*	0.00	*	*	0.00
	May	0.00	*	*	0.00	*	*	0.00
	Jun	0.00	*	*	0.00	*	*	0.01
	Jul	0.00	*	*	0.01	*	*	0.01
	Aug	0.00	*	*	0.01	*	*	0.02
	Sep	0.00	*	*	0.01	*	*	0.03
	Oct	0.02	*	*	0.05	*	*	0.09
	Nov	0.03	*	*	0.11	*	*	0.20
	Dec	0.04	*	*	0.16	*	*	0.32
RLPK 1996		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
	Jan	0.00	*	*	0.01	*	*	0.03
	Feb	0.00	*	*	0.02	*	*	0.05
	Mar	0.00	*	*	0.00	*	*	0.00
	Apr	0.00	*	*	0.00	*	*	0.00
	May	0.00	*	*	0.00	*	*	0.00
	Jun	0.00	*	*	0.00	*	*	0.00
	Jul	0.00	*	*	0.00	*	*	0.01
	Aug	0.00	*	*	0.00	*	*	0.00
	Sep	0.00	*	*	0.00	*	*	0.00
	Oct	0.00	*	*	0.00	*	*	0.02
	Nov	0.02	*	*	0.03	*	*	0.06
	Dec	0.01	*	*	0.02	*	*	0.06
		Year	Average Annual Concentration					
		1996	Ellerslie			Fort Sask.		Royal Park
			*			0.06		0.01

\* - Not available.

a - &gt;50 to &lt;75% operational and may not be representative.

b - Below 50% operational and results not representative.



INDENO(1,2,3-C,D)PYRENE (ng/m<sup>3</sup>)

EDMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
1996	Jan	0.23	*	*	0.45	*	*	0.89
	Feb	0.27	*	*	0.56	*	*	0.90
	Mar	0.18	*	*	0.31	*	*	0.40
	Apr	0.08	*	*	0.16	*	*	0.30
	May	0.14	*	*	0.21	*	*	0.31
	Jun	0.09	*	*	0.19	*	*	0.41
	Jul	0.09	*	*	0.12	*	*	0.14
	Aug	0.06	*	*	0.10	*	*	0.12
	Sep	0.09	*	*	0.16	*	*	0.22
	Oct	0.14	*	*	0.26	*	*	0.43
	Nov	0.14	*	*	0.36	*	*	0.60
	Dec	0.24	*	*	0.51	*	*	0.82
ERMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
1996	Jan	0.14	*	*	0.43	*	*	0.87
	Feb	0.30	*	*	0.51	*	*	0.68
	Mar	0.06	*	*	0.28	*	*	0.61
	Apr	0.08	*	*	0.17	*	*	0.35
	May	0.06	*	*	0.10	*	*	0.20
	Jun	0.05	*	*	0.16	*	*	0.28
	Jul	0.03	*	*	0.09	*	*	0.15
	Aug	0.08	*	*	0.13	*	*	0.29
	Sep	0.04	*	*	0.11	*	*	0.23
	Oct	0.18	*	*	0.56	*	*	1.10
	Nov	0.11	*	*	0.63	*	*	1.20
	Dec	0.29	*	*	0.80	*	*	1.30
EIMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
1996	Jan	0.10	*	*	0.20	*	*	0.35
	Feb	0.07	*	*	0.20	*	*	0.31
	Mar	0.06	*	*	0.19	*	*	0.51
	Apr	0.03	*	*	0.06	*	*	0.09
	May	0.03	*	*	0.07	*	*	0.18
	Jun	0.04	*	*	0.14	*	*	0.37
	Jul	0.01	*	*	0.05	*	*	0.07
	Aug	0.04	*	*	0.06	*	*	0.12
	Sep	0.02	*	*	0.04	*	*	0.08
	Oct	0.06	*	*	0.15	*	*	0.23
	Nov	0.05	*	*	0.36	*	*	0.55
	Dec	0.18	*	*	0.49	*	*	0.75
Average Annual Concentration								
Year		EDMU			ERMU			EIMU
1996		0.28			0.33			0.16

\* - Not available.

a - >50 to <75% operational and may not be representative.

b - Below 50% operational and results not representative.

INDENO(1,2,3-C,D)PYRENE (ng/m<sup>3</sup>)

		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
CDMU 1996	Jan	0.00	*	*	0.33	*	*	0.76
	Feb	0.16	*	*	0.33	*	*	0.61
	Mar	0.15	*	*	0.21	*	*	0.26
	Apr	0.09	*	*	0.17	*	*	0.23
	May	0.10	*	*	0.13	*	*	0.17
	Jun	0.07	*	*	0.11	*	*	0.16
	Jul	0.06	*	*	0.09	*	*	0.11
	Aug	0.04	*	*	0.09	*	*	0.15
	Sep	0.12	*	*	0.18	*	*	0.24
	Oct	0.20	*	*	0.30	*	*	0.45
	Nov	0.16	*	*	0.69	*	*	1.90
	Dec	0.18	*	*	0.52	*	*	1.40
		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
CRMU 1996	Jan	0.11	*	*	0.28	*	*	0.57
	Feb	0.12	*	*	0.24	*	*	0.40
	Mar	0.05	*	*	0.08	*	*	0.10
	Apr	0.02	*	*	0.07	*	*	0.10
	May	0.02	*	*	0.04	*	*	0.07
	Jun	0.02	*	*	0.04	*	*	0.09
	Jul	0.02	*	*	0.04	*	*	0.05
	Aug	0.00	*	*	0.03	*	*	0.04
	Sep	0.06	*	*	0.08	*	*	0.12
	Oct	0.14	*	*	0.28	*	*	0.54
	Nov	0.12	*	*	0.24	*	*	0.46
	Dec	0.05	*	*	0.19	*	*	0.36
		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
CIMU 1996	Jan	0.15	*	*	0.70	*	*	1.35
	Feb	0.31	*	*	0.49	*	*	0.90
	Mar	0.08	*	*	0.23	*	*	0.33
	Apr	0.03	*	*	0.19	*	*	0.35
	May	0.11	*	*	0.14	*	*	0.20
	Jun	0.12	*	*	0.16	*	*	0.20
	Jul	0.08	*	*	0.20	*	*	0.46
	Aug	0.03	*	*	0.13	*	*	0.17
	Sep	0.12	*	*	0.21	*	*	0.37
	Oct	0.28	*	*	0.40	*	*	0.56
	Nov	0.07	*	*	0.56	*	*	1.40
	Dec	0.12	*	*	0.50	*	*	0.85
		Year 1996	Average Annual Concentration					
			CDMU		CRMU		CIMU	
			0.26		0.13		0.32	

\* - Not available.

a - >50 to <75% operational and may not be representative.

b - Below 50% operational and results not representative.

INDENO(1,2,3-C,D)PYRENE (ng/m<sup>3</sup>)

FTSK 1996		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
	Jan	0.08	*	*	0.26	*	*	0.49
	Feb	0.07	*	*	0.20	*	*	0.32
	Mar	0.04	*	*	0.08	*	*	0.18
	Apr	0.02	*	*	0.05	*	*	0.13
	May	0.02	*	*	0.03	*	*	0.06
	Jun	0.02	*	*	0.05	*	*	0.10
	Jul	0.01	*	*	0.02	*	*	0.02
	Aug	0.00	*	*	0.02	*	*	0.06
	Sep	0.00	*	*	0.02	*	*	0.04
	Oct	0.07	*	*	0.21	*	*	0.30
	Nov	0.07	*	*	0.19	*	*	0.39
	Dec	0.11	*	*	0.32	*	*	0.64
RLPK 1996		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
	Jan	0.00	*	*	0.02	*	*	0.07
	Feb	0.00	*	*	0.04	*	*	0.07
	Mar	0.00	*	*	0.01	*	*	0.03
	Apr	0.00	*	*	0.01	*	*	0.03
	May	0.00	*	*	0.00	*	*	0.02
	Jun	0.00	*	*	0.00	*	*	0.00
	Jul	0.00	*	*	0.00	*	*	0.01
	Aug	0.00	*	*	0.00	*	*	0.00
	Sep	0.00	*	*	0.00	*	*	0.00
	Oct	0.03	*	*	0.06	*	*	0.10
	Nov	0.01	*	*	0.04	*	*	0.08
	Dec	0.04	*	*	0.07	*	*	0.13
Year 1996		Average Annual Concentration						
		Ellerslie			Fort Sask.		Royal Park	
		*			0.12		0.02	

\* - Not available.

a - >50 to <75% operational and may not be representative.

b - Below 50% operational and results not representative.





DIBENZO(A,H)ANTHRACENE (ng/m<sup>3</sup>)

		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
EDMU 1996	Jan	0.00	*	*	0.01	*	*	0.04
	Feb	0.00	*	*	0.06	*	*	0.18
	Mar	0.00	*	*	0.00	*	*	0.00
	Apr	0.00	*	*	0.00	*	*	0.00
	May	0.00	*	*	0.00	*	*	0.00
	Jun	0.00	*	*	0.02	*	*	0.05
	Jul	0.00	*	*	0.01	*	*	0.02
	Aug	0.00	*	*	0.01	*	*	0.02
	Sep	0.00	*	*	0.00	*	*	0.00
	Oct	0.00	*	*	0.02	*	*	0.06
	Nov	0.00	*	*	0.01	*	*	0.03
	Dec	0.00	*	*	0.03	*	*	0.05
ERMU 1996	Jan	0.00	*	*	0.02	*	*	0.07
	Feb	0.00	*	*	0.03	*	*	0.06
	Mar	0.00	*	*	0.01	*	*	0.05
	Apr	0.00	*	*	0.00	*	*	0.02
	May	0.00	*	*	0.00	*	*	0.00
	Jun	0.00	*	*	0.01	*	*	0.03
	Jul	0.00	*	*	0.01	*	*	0.02
	Aug	0.00	*	*	0.01	*	*	0.05
	Sep	0.00	*	*	0.00	*	*	0.00
	Oct	0.00	*	*	0.04	*	*	0.09
	Nov	0.00	*	*	0.04	*	*	0.09
	Dec	0.00	*	*	0.05	*	*	0.09
EIMU 1996	Jan	0.00	*	*	0.01	*	*	0.04
	Feb	0.00	*	*	0.03	*	*	0.10
	Mar	0.00	*	*	0.09	*	*	0.44
	Apr	0.00	*	*	0.00	*	*	0.00
	May	0.00	*	*	0.00	*	*	0.00
	Jun	0.00	*	*	0.02	*	*	0.08
	Jul	0.00	*	*	0.01	*	*	0.02
	Aug	0.00	*	*	0.00	*	*	0.02
	Sep	0.00	*	*	0.00	*	*	0.00
	Oct	0.00	*	*	0.02	*	*	0.03
	Nov	0.00	*	*	0.03	*	*	0.05
	Dec	0.02	*	*	0.04	*	*	0.07
		Year	Average Annual Concentration					
		1996	EDMU		ERMU		EIMU	
			0.01		0.02		0.02	

\* - Not available.

a - >50 to <75% operational and may not be representative.

b - Below 50% operational and results not representative.

DIBENZO(A,H)ANTHRACENE (ng/m<sup>3</sup>)

		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
CDMU 1996	Jan	0.00	*	*	0.01	*	*	0.04
	Feb	0.00	*	*	0.01	*	*	0.03
	Mar	0.00	*	*	0.00	*	*	0.00
	Apr	0.00	*	*	0.00	*	*	0.00
	May	0.00	*	*	0.00	*	*	0.00
	Jun	0.00	*	*	0.01	*	*	0.02
	Jul	0.00	*	*	0.01	*	*	0.01
	Aug	0.00	*	*	0.00	*	*	0.00
	Sep	0.00	*	*	0.00	*	*	0.00
	Oct	0.00	*	*	0.01	*	*	0.03
	Nov	0.00	*	*	0.01	*	*	0.04
	Dec	0.00	*	*	0.01	*	*	0.03
CRMU 1996	Jan	0.00	*	*	0.00	*	*	0.00
	Feb	0.00	*	*	0.01	*	*	0.04
	Mar	0.00	*	*	0.00	*	*	0.00
	Apr	0.00	*	*	0.00	*	*	0.00
	May	0.00	*	*	0.00	*	*	0.00
	Jun	0.00	*	*	0.00	*	*	0.00
	Jul	0.00	*	*	0.00	*	*	0.00
	Aug	0.00	*	*	0.00	*	*	0.00
	Sep	0.00	*	*	0.00	*	*	0.00
	Oct	0.00	*	*	0.01	*	*	0.03
	Nov	0.00	*	*	0.01	*	*	0.03
	Dec	0.00	*	*	0.01	*	*	0.03
CIMU 1996	Jan	0.00	*	*	0.04	*	*	0.09
	Feb	0.00	*	*	0.03	*	*	0.08
	Mar	0.00	*	*	0.00	*	*	0.00
	Apr	0.00	*	*	0.00	*	*	0.00
	May	0.00	*	*	0.00	*	*	0.00
	Jun	0.02	*	*	0.02	*	*	0.02
	Jul	0.01	*	*	0.03	*	*	0.09
	Aug	0.00	*	*	0.01	*	*	0.02
	Sep	0.00	*	*	0.00	*	*	0.00
	Oct	0.03	*	*	0.04	*	*	0.04
	Nov	0.00	*	*	0.04	*	*	0.11
	Dec	0.00	*	*	0.03	*	*	0.05
		Year	Average Annual Concentration					
		1996	CDMU			CRMU		CIMU
			0.01			0.00		0.02

\* - Not available.

a - &gt;50 to &lt;75% operational and may not be representative.

b - Below 50% operational and results not representative.

DIBENZO(A,H)ANTHRACENE (ng/m<sup>3</sup>)

		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
FTSK 1996	Jan	0.00	*	*	0.01	*	*	0.03
	Feb	0.00	*	*	0.02	*	*	0.03
	Mar	0.00	*	*	0.00	*	*	0.00
	Apr	0.00	*	*	0.00	*	*	0.00
	May	0.00	*	*	0.00	*	*	0.00
	Jun	0.00	*	*	0.01	*	*	0.02
	Jul	0.00	*	*	0.00	*	*	0.01
	Aug	0.00	*	*	0.00	*	*	0.01
	Sep	0.00	*	*	0.00	*	*	0.00
	Oct	0.00	*	*	0.01	*	*	0.03
	Nov	0.00	*	*	0.01	*	*	0.03
	Dec	0.00	*	*	0.02	*	*	0.05
		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
RLPK 1996	Jan	0.00	*	*	0.00	*	*	0.00
	Feb	0.00	*	*	0.00	*	*	0.00
	Mar	0.00	*	*	0.00	*	*	0.00
	Apr	0.00	*	*	0.00	*	*	0.00
	May	0.00	*	*	0.00	*	*	0.00
	Jun	0.00	*	*	0.00	*	*	0.00
	Jul	0.00	*	*	0.00	*	*	0.01
	Aug	0.00	*	*	0.00	*	*	0.00
	Sep	0.00	*	*	0.00	*	*	0.00
	Oct	0.00	*	*	0.00	*	*	0.00
	Nov	0.00	*	*	0.00	*	*	0.01
	Dec	0.00	*	*	0.00	*	*	0.00
		Year	Average Annual Concentration					
		1996	Ellerslie			Fort Sask.		
			*			0.01		
						Royal Park		
						0.00		

\* - Not available.

a - >50 to <75% operational and may not be representative.

b - Below 50% operational and results not representative.



BENZO(G,H,I)PERYLENE (ng/m<sup>3</sup>)

EDMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
1996	Jan	0.67	*	*	1.42	*	*	2.97
	Feb	0.82	*	*	1.53	*	*	2.22
	Mar	0.49	*	*	0.81	*	*	1.14
	Apr	0.20	*	*	0.44	*	*	1.12
	May	0.32	*	*	0.50	*	*	0.74
	Jun	0.16	*	*	0.38	*	*	0.71
	Jul	0.17	*	*	0.25	*	*	0.31
	Aug	0.13	*	*	0.21	*	*	0.26
	Sep	0.22	*	*	0.38	*	*	0.52
	Oct	0.30	*	*	0.56	*	*	0.93
	Nov	0.33	*	*	0.88	*	*	1.50
	Dec	0.50	*	*	1.14	*	*	2.00
ERMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
1996	Jan	0.28	*	*	1.07	*	*	2.43
	Feb	0.79	*	*	1.22	*	*	1.60
	Mar	0.15	*	*	0.66	*	*	1.54
	Apr	0.14	*	*	0.39	*	*	0.94
	May	0.13	*	*	0.23	*	*	0.49
	Jun	0.08	*	*	0.31	*	*	0.52
	Jul	0.07	*	*	0.20	*	*	0.34
	Aug	0.18	*	*	0.31	*	*	0.60
	Sep	0.08	*	*	0.26	*	*	0.49
	Oct	0.38	*	*	1.00	*	*	1.60
	Nov	0.24	*	*	1.50	*	*	2.80
	Dec	0.60	*	*	1.95	*	*	3.30
EIMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
1996	Jan	0.18	*	*	0.51	*	*	0.88
	Feb	0.22	*	*	0.49	*	*	0.71
	Mar	0.13	*	*	0.34	*	*	0.78
	Apr	0.07	*	*	0.13	*	*	0.20
	May	0.05	*	*	0.14	*	*	0.37
	Jun	0.07	*	*	0.25	*	*	0.53
	Jul	0.02	*	*	0.09	*	*	0.13
	Aug	0.06	*	*	0.12	*	*	0.26
	Sep	0.04	*	*	0.10	*	*	0.21
	Oct	0.11	*	*	0.29	*	*	0.42
	Nov	0.08	*	*	0.61	*	*	0.93
	Dec	0.30	*	*	1.07	*	*	1.80
Average Annual Concentration								
		Year	EDMU		ERMU		EIMU	
		1996	0.70		0.75		0.34	

\* - Not available.

a - &gt;50 to &lt;75% operational and may not be representative.

b - Below 50% operational and results not representative.



BENZO(G,H,I)PERYLENE (ng/m<sup>3</sup>)

CDMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
1996	Jan	0.29	*	*	0.89	*	*	2.01
	Feb	0.45	*	*	0.98	*	*	1.75
	Mar	0.43	*	*	0.64	*	*	0.91
	Apr	0.22	*	*	0.40	*	*	0.59
	May	0.28	*	*	0.36	*	*	0.48
	Jun	0.13	*	*	0.23	*	*	0.32
	Jul	0.13	*	*	0.20	*	*	0.26
	Aug	0.08	*	*	0.21	*	*	0.31
	Sep	0.35	*	*	0.53	*	*	0.65
	Oct	0.44	*	*	0.85	*	*	1.40
	Nov	0.36	*	*	2.30	*	*	7.20
	Dec	0.41	*	*	1.85	*	*	5.60
CRMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
1996	Jan	0.31	*	*	0.70	*	*	1.48
	Feb	0.35	*	*	0.58	*	*	0.97
	Mar	0.10	*	*	0.14	*	*	0.21
	Apr	0.04	*	*	0.13	*	*	0.24
	May	0.05	*	*	0.10	*	*	0.16
	Jun	0.00	*	*	0.06	*	*	0.11
	Jul	0.03	*	*	0.06	*	*	0.09
	Aug	0.03	*	*	0.07	*	*	0.10
	Sep	0.12	*	*	0.20	*	*	0.34
	Oct	0.29	*	*	0.57	*	*	1.20
	Nov	0.26	*	*	0.50	*	*	0.94
	Dec	0.12	*	*	0.41	*	*	0.74
CIMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
1996	Jan	0.34	*	*	1.92	*	*	4.83
	Feb	0.84	*	*	1.39	*	*	2.43
	Mar	0.18	*	*	0.54	*	*	0.85
	Apr	0.06	*	*	0.43	*	*	0.83
	May	0.25	*	*	0.34	*	*	0.49
	Jun	0.00	*	*	0.22	*	*	0.43
	Jul	0.15	*	*	0.37	*	*	0.69
	Aug	0.08	*	*	0.31	*	*	0.42
	Sep	0.29	*	*	0.54	*	*	0.94
	Oct	0.63	*	*	0.90	*	*	1.30
	Nov	0.14	*	*	1.18	*	*	3.10
	Dec	0.24	*	*	1.11	*	*	1.80
Average Annual Concentration								
		Year	CDMU		CRMU		CIMU	
		1996	0.77		0.28		0.75	

\* - Not available.

a - &gt;50 to &lt;75% operational and may not be representative.

b - Below 50% operational and results not representative.

BENZO(G,H,I)PERYLENE (ng/m <sup>3</sup> )								
FTSK 1996		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
	Jan	0.13	*	*	0.56	*	*	1.16
	Feb	0.19	*	*	0.48	*	*	0.76
	Mar	0.06	*	*	0.14	*	*	0.38
	Apr	0.04	*	*	0.11	*	*	0.28
	May	0.04	*	*	0.07	*	*	0.13
	Jun	0.03	*	*	0.07	*	*	0.14
	Jul	0.03	*	*	0.03	*	*	0.04
	Aug	0.04	*	*	0.07	*	*	0.10
	Sep	0.00	*	*	0.05	*	*	0.08
	Oct	0.10	*	*	0.26	*	*	0.40
	Nov	0.10	*	*	0.39	*	*	0.82
	Dec	0.21	*	*	0.61	*	*	1.20
RLPK 1996		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
	Jan	0.00	*	*	0.07	*	*	0.11
	Feb	0.00	*	*	0.05	*	*	0.09
	Mar	0.00	*	*	0.01	*	*	0.03
	Apr	0.00	*	*	0.01	*	*	0.03
	May	0.00	*	*	0.01	*	*	0.02
	Jun	0.00	*	*	0.01	*	*	0.05
	Jul	0.00	*	*	0.00	*	*	0.01
	Aug	0.00	*	*	0.01	*	*	0.01
	Sep	0.00	*	*	0.00	*	*	0.00
	Oct	0.02	*	*	0.06	*	*	0.09
	Nov	0.02	*	*	0.06	*	*	0.11
	Dec	0.06	*	*	0.09	*	*	0.16
		Year 1996	Average Annual Concentration					
			Ellerslie		Fort Sask.		Royal Park	
			*		0.23		0.03	

\* - Not available.

a - >50 to <75% operational and may not be representative.

b - Below 50% operational and results not representative.



SULPHATE ( $\mu\text{g}/\text{m}^3$ )

EDMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
1996	Jan	0.65	*	*	4.37	*	*	8.29
	Feb	0.81	*	*	4.18	*	*	10.78
	Mar	1.00	*	*	2.74	*	*	4.60
	Apr	0.70	*	*	2.69	*	*	5.79
	May	1.76	*	*	2.87	*	*	4.37
	Jun	0.34	*	*	1.62	*	*	2.51
	Jul	0.61	*	*	1.95	*	*	3.45
	Aug	0.54	*	*	1.20	*	*	1.93
	Sep	0.74	*	*	1.43	*	*	2.37
	Oct	1.02	*	*	1.77	*	*	3.42
	Nov	1.12	*	*	1.87	*	*	3.24
	Dec	0.58	*	*	2.08	*	*	3.68
ERMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
1996	Jan	0.60	*	*	3.41	*	*	5.45
	Feb	0.75	*	*	4.66	*	*	13.83
	Mar	1.09	*	*	2.74	*	*	4.68
	Apr	0.55	*	*	2.58	*	*	6.04
	May	1.53	*	*	2.98	*	*	4.59
	Jun	0.24	*	*	1.56	*	*	2.71
	Jul	0.59	*	*	1.76	*	*	3.17
	Aug	0.59	*	*	1.28	*	*	2.25
	Sep	0.45	*	*	1.41	*	*	2.75
	Oct	0.67	*	*	2.07	*	*	4.47
	Nov	0.86	*	*	2.44	*	*	4.76
	Dec	0.74	*	*	3.12	*	*	5.73
EIMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
1996	Jan	1.03	*	*	4.79	*	*	9.88
	Feb	1.43	*	*	4.91	*	*	12.64
	Mar	1.12	*	*	2.58	*	*	4.02
	Apr	0.78	*	*	2.94	*	*	5.74
	May	1.41	*	*	2.62	*	*	4.33
	Jun	0.25	*	*	1.75	*	*	2.95
	Jul	1.46	*	*	2.10	*	*	4.35
	Aug	0.97	*	*	1.48	*	*	2.22
	Sep	0.80	*	*	1.52	*	*	2.48
	Oct	0.89	*	*	2.07	*	*	4.18
	Nov	1.26	*	*	2.72	*	*	4.21
	Dec	2.03	*	*	3.89	*	*	6.03
Average Annual Concentration								
	Year	EDMU		ERMU		EIMU		
	1985	1.20		1.18		1.36		
	1986	1.78		1.16		1.44		
	1987	1.35		1.15		1.30		
	1988	b		b		b		
	1989	*		*		*		
	1990	*		*		*		
	1991	*		*		*		
	1992	*		*		*		
	1993	2.15		2.10		2.43		
	1994	1.95		2.26		2.25		
	1995	2.40		2.70		2.38		
	1996	2.38		2.49		2.76		

\* - Not available.

a - &gt;50 to &lt;75% operational and may not be representative.

b - Below 50% operational and results not representative.

SULPHATE ( $\mu\text{g}/\text{m}^3$ )

		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
CDMU 1996	Jan	0.49	*	*	3.88	*	*	7.41
	Feb	0.65	*	*	2.69	*	*	5.19
	Mar	0.27	*	*	2.18	*	*	3.48
	Apr	0.64	*	*	2.40	*	*	5.64
	May	2.26	*	*	3.76	*	*	5.37
	Jun	0.89	*	*	1.31	*	*	1.84
	Jul	0.36	*	*	1.89	*	*	3.20
	Aug	0.65	*	*	1.11	*	*	1.61
	Sep	0.88	*	*	2.37	*	*	4.98
	Oct	0.91	*	*	1.65	*	*	2.67
	Nov	2.46	*	*	3.60	*	*	5.01
	Dec	0.44	*	*	2.30	*	*	4.50
CRMU 1996	Jan	0.33	*	*	2.51	*	*	4.01
	Feb	0.53	*	*	2.05	*	*	3.55
	Mar	0.27	*	*	2.06	*	*	3.27
	Apr	0.60	*	*	2.32	*	*	5.20
	May	2.12	*	*	3.58	*	*	5.64
	Jun	0.80	*	*	1.21	*	*	1.72
	Jul	1.33	*	*	1.96	*	*	3.58
	Aug	0.58	*	*	1.21	*	*	2.28
	Sep	0.64	*	*	1.56	*	*	2.80
	Oct	0.69	*	*	1.30	*	*	1.86
	Nov	1.26	*	*	2.94	*	*	4.76
	Dec	0.42	*	*	2.19	*	*	3.59
CIMU 1996	Jan	1.62	*	*	5.37	*	*	8.36
	Feb	1.12	*	*	3.22	*	*	5.27
	Mar	0.58	*	*	2.87	*	*	5.05
	Apr	0.73	*	*	2.98	*	*	6.72
	May	2.18	*	*	4.21	*	*	5.69
	Jun	1.20	*	*	1.66	*	*	2.47
	Jul	1.01	*	*	2.40	*	*	3.68
	Aug	0.63	*	*	1.99	*	*	3.06
	Sep	0.95	*	*	4.19	*	*	8.67
	Oct	1.28	*	*	2.14	*	*	3.05
	Nov	1.74	*	*	4.09	*	*	8.69
	Dec	0.66	*	*	3.09	*	*	5.50
Average Annual Concentration								
Year		CDMU		CRMU		CIMU		
1985		1.84		1.28		2.28		
1986		1.59		1.20		1.85		
1987		1.83		1.19		1.35		
1988		b		b		b		
1989		*		*		*		
1990		*		*		*		
1991		*		*		*		
1992		*		*		*		
1993		2.15		1.83		2.55		
1994		2.02		1.61		2.45		
1995		2.19		1.90		2.92		
1996		2.40		2.06		3.17		

\* - Not available.

a - &gt;50 to &lt;75% operational and may not be representative.

b - Below 50% operational and results not representative.

SULPHATE ( $\mu\text{g}/\text{m}^3$ )

FTSK 1996		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
	Jan	2.17	*	*	3.44	*	*	5.54
	Feb	0.57	*	*	13.68	*	*	31.12
	Mar	0.81	*	*	2.82	*	*	5.08
	Apr	0.52	*	*	2.05	*	*	4.48
	May	1.00	*	*	2.07	*	*	2.98
	Jun	0.17	*	*	1.41	*	*	2.58
	Jul	0.50	*	*	1.70	*	*	3.64
	Aug	0.47	*	*	1.02	*	*	1.43
	Sep	0.34	*	*	0.96	*	*	1.66
	Oct	0.57	*	*	1.11	*	*	2.25
	Nov	0.64	*	*	2.85	*	*	7.50
	Dec	0.80	*	*	2.58	*	*	5.03

RLPK 1996		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
	Jan	0.98	*	*	1.76	*	*	2.49
	Feb	0.94	*	*	2.57	*	*	4.15
	Mar	1.95	*	*	3.45	*	*	4.85
	Apr	0.78	*	*	2.78	*	*	5.45
	May	0.88	*	*	1.99	*	*	2.96
	Jun	0.39	*	*	1.55	*	*	3.02
	Jul	0.61	*	*	0.93	*	*	1.48
	Aug	0.58	*	*	0.92	*	*	1.28
	Sep	0.38	*	*	0.92	*	*	1.61
	Oct	0.68	*	*	0.97	*	*	1.49
	Nov	0.78	*	*	1.70	*	*	3.13
	Dec	1.68	*	*	2.52	*	*	5.53

Average Annual Concentration			
Year	Ellerslie	Fort Sask.	Royal Park
1985	0.59	1.49	*
1986	1.16	1.85	*
1987	1.1	1.38	*
1988	b	b	*
1989	*	*	*
1990	*	*	*
1991	*	*	*
1992	*	*	*
1993	*	2.10	1.55
1994	*	2.35	1.46
1995	*	2.35	1.76
1996	*	2.94	1.83

\* - Not available.

a - >50 to <75% operational and may not be representative.

b - Below 50% operational and results not representative.





NITRATE ( $\mu\text{g}/\text{m}^3$ )

EDMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
1996	Jan	0.23	*	*	0.82	*	*	1.37
	Feb	1.13	*	*	2.76	*	*	5.34
	Mar	0.83	*	*	3.19	*	*	7.39
	Apr	0.22	*	*	1.33	*	*	3.54
	May	0.52	*	*	0.92	*	*	1.88
	Jun	0.18	*	*	0.38	*	*	0.56
	Jul	0.31	*	*	0.69	*	*	1.61
	Aug	0.41	*	*	0.82	*	*	2.19
	Sep	0.29	*	*	0.59	*	*	0.95
	Oct	0.72	*	*	1.09	*	*	1.96
	Nov	0.72	*	*	1.33	*	*	1.87
	Dec	0.91	*	*	1.63	*	*	4.03
ERMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
1996	Jan	0.17	*	*	0.84	*	*	2.36
	Feb	1.14	*	*	2.47	*	*	4.20
	Mar	0.41	*	*	2.99	*	*	9.96
	Apr	0.09	*	*	0.84	*	*	2.84
	May	0.34	*	*	0.63	*	*	1.59
	Jun	0.10	*	*	0.19	*	*	0.27
	Jul	0.14	*	*	0.53	*	*	1.83
	Aug	0.18	*	*	0.79	*	*	3.30
	Sep	0.15	*	*	0.47	*	*	0.93
	Oct	0.63	*	*	1.14	*	*	1.93
	Nov	0.63	*	*	1.55	*	*	2.31
	Dec	1.04	*	*	2.20	*	*	5.85
EIMU		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
1996	Jan	0.42	*	*	1.35	*	*	2.90
	Feb	1.37	*	*	2.60	*	*	3.66
	Mar	0.56	*	*	2.62	*	*	7.41
	Apr	0.20	*	*	1.07	*	*	2.61
	May	0.22	*	*	0.88	*	*	2.36
	Jun	0.11	*	*	0.34	*	*	0.58
	Jul	0.27	*	*	0.69	*	*	1.99
	Aug	0.35	*	*	0.81	*	*	2.20
	Sep	0.34	*	*	0.54	*	*	0.95
	Oct	0.66	*	*	1.30	*	*	2.29
	Nov	0.61	*	*	2.28	*	*	3.09
	Dec	1.06	*	*	3.32	*	*	9.63
Average Annual Concentration								
	Year	EDMU		ERMU		EIMU		
	1985	0.76		0.59		0.61		
	1986	1.03		0.80		0.77		
	1987	0.95		0.69		0.84		
	1988	b		b		b		
	1989	*		*		*		
	1990	*		*		*		
	1991	*		*		*		
	1992	*		*		*		
	1993	1.19		1.06		1.40		
	1994	1.17		1.28		1.31		
	1995	1.38		1.30		1.48		
	1996	1.29		1.22		1.46		

\* - Not available.

a - &gt;50 to &lt;75% operational and may not be representative.

b - Below 50% operational and results not representative.

NITRATE ( $\mu\text{g}/\text{m}^3$ )

		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
CDMU 1996	Jan	0.37	*	*	1.49	*	*	3.30
	Feb	0.60	*	*	1.77	*	*	2.88
	Mar	0.44	*	*	1.21	*	*	2.77
	Apr	0.30	*	*	1.29	*	*	2.36
	May	0.87	*	*	1.83	*	*	3.98
	Jun	0.15	*	*	0.50	*	*	0.71
	Jul	0.27	*	*	0.85	*	*	1.32
	Aug	0.34	*	*	0.71	*	*	1.18
	Sep	0.49	*	*	0.79	*	*	1.50
	Oct	0.66	*	*	1.24	*	*	2.78
	Nov	0.78	*	*	2.88	*	*	5.49
	Dec	0.31	*	*	1.29	*	*	1.99
CRMU 1996	Jan	0.21	*	*	0.97	*	*	2.83
	Feb	0.59	*	*	1.22	*	*	1.80
	Mar	0.21	*	*	0.90	*	*	2.05
	Apr	0.14	*	*	0.90	*	*	1.93
	May	0.48	*	*	1.56	*	*	4.10
	Jun	0.06	*	*	0.29	*	*	0.62
	Jul	0.24	*	*	0.43	*	*	0.57
	Aug	0.36	*	*	0.52	*	*	0.72
	Sep	0.25	*	*	0.55	*	*	1.09
	Oct	0.44	*	*	0.97	*	*	2.29
	Nov	0.61	*	*	2.09	*	*	3.98
	Dec	0.23	*	*	0.94	*	*	1.35
CIMU 1996	Jan	0.71	*	*	1.45	*	*	2.84
	Feb	0.73	*	*	2.45	*	*	4.13
	Mar	0.56	*	*	1.32	*	*	2.41
	Apr	0.28	*	*	1.88	*	*	4.57
	May	1.07	*	*	2.09	*	*	4.14
	Jun	0.19	*	*	0.80	*	*	1.25
	Jul	0.42	*	*	1.18	*	*	2.19
	Aug	0.34	*	*	0.98	*	*	1.59
	Sep	0.42	*	*	0.88	*	*	1.68
	Oct	0.77	*	*	1.34	*	*	2.99
	Nov	0.83	*	*	3.07	*	*	7.62
	Dec	0.29	*	*	1.55	*	*	3.46
Average Annual Concentration								
Year		CDMU		CRMU		CIMU		
1985		0.82		0.52		0.78		
1986		1.10		0.80		0.94		
1987		1.13		0.68		0.86		
1988		b		b		b		
1989		*		*		*		
1990		*		*		*		
1991		*		*		*		
1992		*		*		*		
1993		1.13		0.69		1.54		
1994		1.21		0.81		1.29		
1995		1.22		0.74		1.44		
1996		1.30		0.93		1.56		

\* - Not available.

a - &gt;50 to &lt;75% operational and may not be representative.

b - Below 50% operational and results not representative.

NITRATE ( $\mu\text{g}/\text{m}^3$ )								
FTSK 1996		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
	Jan	0.29	*	*	0.70	*	*	1.23
	Feb	0.61	*	*	1.46	*	*	2.11
	Mar	0.22	*	*	3.11	*	*	8.42
	Apr	0.06	*	*	0.40	*	*	1.40
	May	0.14	*	*	0.46	*	*	1.17
	Jun	0.10	*	*	0.13	*	*	0.16
	Jul	0.06	*	*	0.26	*	*	0.57
	Aug	0.18	*	*	0.41	*	*	1.02
	Sep	0.14	*	*	0.31	*	*	0.59
	Oct	0.40	*	*	0.72	*	*	1.25
	Nov	0.77	*	*	1.70	*	*	2.74
	Dec	0.89	*	*	2.69	*	*	7.91
RLPK 1996		MIN	25 %	50 %	MEAN	75 %	90 %	PEAK
	Jan	0.46	*	*	0.81	*	*	1.48
	Feb	0.23	*	*	0.68	*	*	1.18
	Mar	0.10	*	*	2.12	*	*	9.50
	Apr	0.07	*	*	0.60	*	*	2.45
	May	0.09	*	*	0.52	*	*	1.17
	Jun	0.04	*	*	1.64	*	*	7.78
	Jul	0.19	*	*	0.26	*	*	0.30
	Aug	0.13	*	*	0.47	*	*	0.79
	Sep	0.13	*	*	0.42	*	*	0.81
	Oct	0.39	*	*	0.76	*	*	1.16
	Nov	0.26	*	*	0.81	*	*	1.59
	Dec	0.38	*	*	1.02	*	*	2.50
Average Annual Concentration								
		Year	Ellerslie		Fort Sask.		Royal Park	
		1985	0.24		0.53		*	
		1986	0.63		0.65		*	
		1987	0.53		0.63		*	
		1988	b		b		*	
		1989	*		*		*	
		1990	*		*		*	
		1991	*		*		*	
		1992	*		*		*	
		1993	*		0.82		0.30	
		1994	*		1.06		0.63	
		1995	*		0.97		0.66	
		1996	*		1.01		0.84	

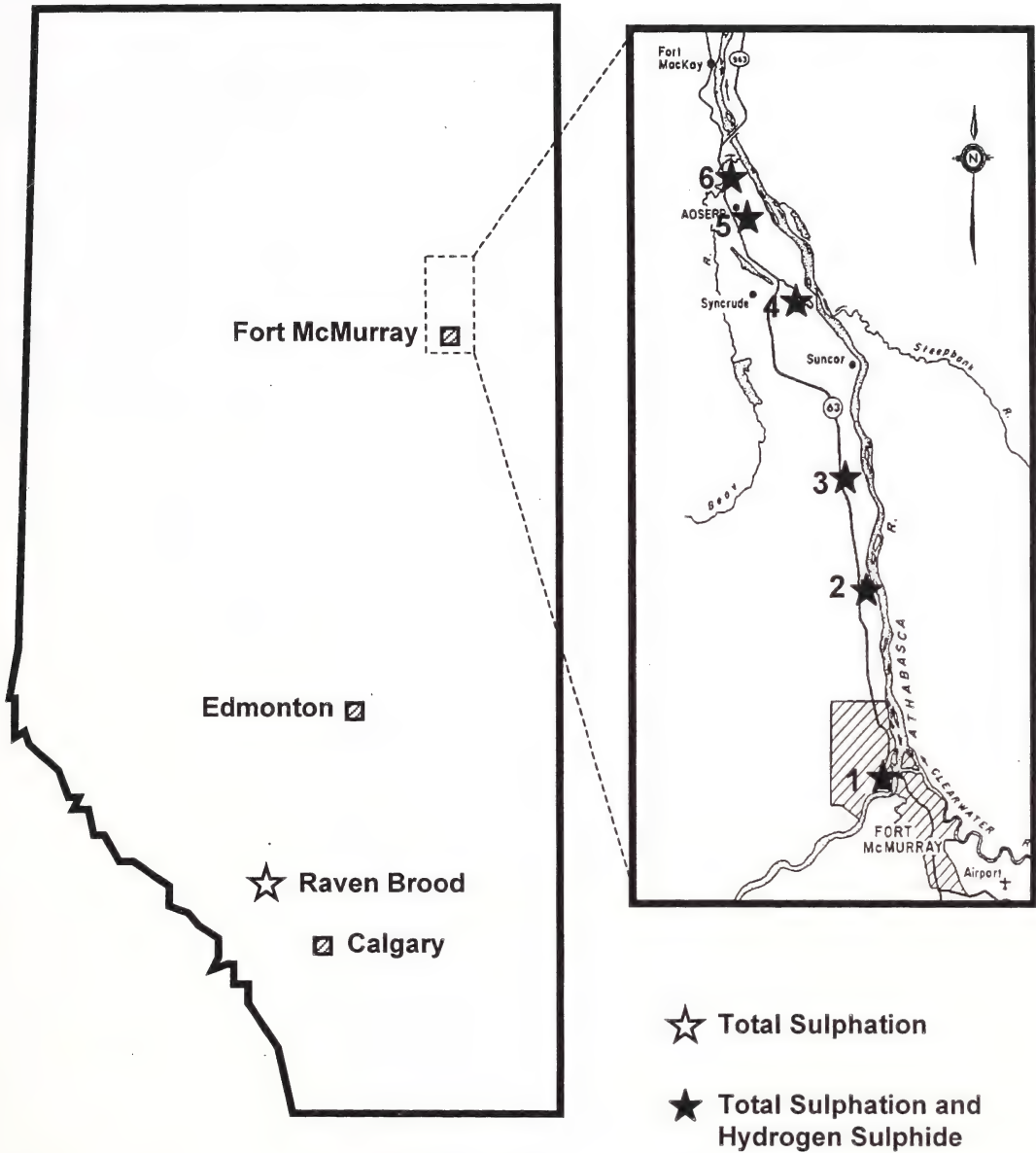
\* - Not available.

a - >50 to <75% operational and may not be representative.

b - Below 50% operational and results not representative.



## Location of Static Air Quality Monitoring Networks in 1996





# Static Monitoring Results for 1996 - TOTAL SULPHATION

One-Month Monitoring Period Units: mg/day/100 cm<sup>2</sup> Guideline: 0.50 mg/day/100 cm<sup>2</sup>

Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg.
Fort McMurray # 1	0.029	0.085	0.095	0.061	0.020	0.018	0.018	<0.016	0.038	0.019	<0.016	<0.016	0.037
Fort McMurray # 2	<0.016	0.053	0.067	0.032	<0.016	0.016	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	0.025
Fort McMurray # 3	0.028	0.123	0.168	0.119	0.036	0.068	0.040	0.019	0.025	0.021	0.025	<0.016	0.057
Fort McMurray # 4	0.087	0.070	0.218	0.122	0.170	0.040	0.072	0.050	0.023	0.034	0.017	0.020	0.077
Fort McMurray # 5	0.019	0.036	0.042	0.041	0.031	<0.016	0.019	0.024	<0.016	0.021	<0.016	<0.016	0.030
Fort McMurray # 6	0.020	0.016	0.055	0.056	0.038	<0.016	0.045	0.027	0.043	0.024	<0.016	<0.016	0.031
Fort McMurray Average (# 1-6)	0.033	0.064	0.107	0.072	0.052	0.029	0.035	0.025	0.027	0.023	0.018	0.017	0.042
Raven Brood	0.016	0.017	0.025	0.016	0.016	0.016	n/a	n/a	n/a	n/a	n/a	n/a	0.018

n/a no data available (Raven Brood decommissioned after June 30, 1996)

<0.016 total sulphation loading was less than the detection limit of 0.016 mg/day/100cm<sup>2</sup>

Station	Annual Average	# of Stations	Exceedances of the Guideline
Fort McMurray	0.042	6	0%
Raven Brood	0.018a	1	0%

a average is for 6 months of data

## Long-Term Annual Averages

Year	Fort McMurray	Raven Brood
1980	0.082	n/a
1981	0.079	n/a
1982	0.070	n/a
1983	0.089	n/a
1984	0.055	0.035
1985	0.065	0.030
1986	0.053	0.019
1987	0.044	0.021
1988	0.060	0.082
1989	0.077	0.079
1990	0.061	0.078
1991	0.066	0.063
1992	0.054	0.072
1993	0.052	0.072
1994	0.066	0.015
1995	0.057	0.016
1996	0.042	0.018

n/a no data available (began monitoring at Raven Brood 1984)

# Static Monitoring Results for 1996 - HYDROGEN SULPHIDE

One-Month Monitoring Period

Guideline: 0.10 mg/day/100 cm<sup>2</sup>

Units: mg/day/100 cm<sup>2</sup>

Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg.
Fort McMurray # 1	<0.004	0.025	0.025	<0.004	0.009	<0.004	0.009	<0.004	0.005	<0.004	<0.004	<0.004	0.008
Fort McMurray # 2	<0.004	0.023	0.020	<0.004	<0.004	<0.004	0.004	<0.004	0.005	<0.004	<0.004	<0.004	0.007
Fort McMurray # 3	n/a	0.021	0.034	0.009	<0.004	<0.004	<0.004	<0.004	0.005	<0.004	0.005	<0.004	0.009
Fort McMurray # 4	<0.004	0.030	0.031	<0.004	<0.004	<0.004	<0.004	<0.004	0.005	<0.004	0.009	0.014	0.010
Fort McMurray # 5	<0.004	0.025	0.015	0.004	<0.004	<0.004	0.004	<0.004	<0.004	0.006	<0.004	<0.004	0.007
Fort McMurray # 6	<0.004	0.012	0.025	<0.004	<0.004	<0.004	<0.004	<0.004	0.005	0.004	0.009	<0.004	0.007
Average (# 1-6)	<0.004	0.023	0.025	0.005	0.005	<0.004	0.005	<0.004	0.005	<0.004	0.006	0.006	0.008

n/a no data for this month

<0.004 total sulphation loading was less than the detection limit of 0.004 mg/day/100cm<sup>2</sup>

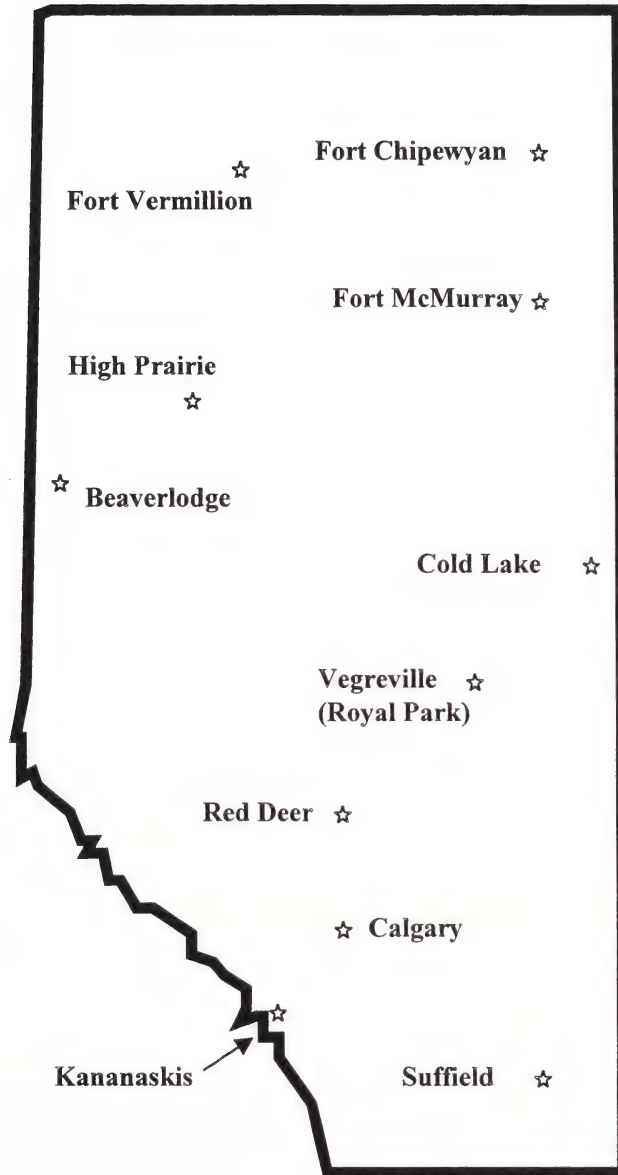
Station	Annual Average	Exceedances of the Guideline	# of Stations
Fort McMurray	0.008	0%	6

## Long-Term Annual Averages

Year	Fort McMurray
1980	0.012
1981	0.013
1982	0.020
1983	0.022
1984	0.014
1985	0.013
1986	0.010
1987	0.009
1988	0.016
1989	0.014
1990	0.014
1991	0.011
1992	0.017
1993	0.018
1994	0.034
1995	0.016
1996	0.008



## Location of Precipitation Monitoring Stations



## BEAVERLODGE

Sample Start Date	Sample End Date	Sample Period (days)	Catch of Collector (ml)	Precip. Depth* (mm)	pH	Effective Acidity (H+ kg/ha)	Potential Acid Input (H+ kg/ha)	Sulphate (kg/ha)	Nitrate (kg/ha)	Ammonium (kg/ha)	Chloride (kg/ha)	Phosphate (kg/ha)	Sodium (kg/ha)	Potassium (kg/ha)	Calcium (kg/ha)	Magnesium (kg/ha)
10-Jan-96	17-Jan-96	7	133	4.2	5.18	0.0001	0.0001	0.012	0.031	0.002	0.004	a	0.002	0.002	0.012	0.001
7-Feb-96	14-Feb-96	7	65	2.0	5.29	0.0000	0.0003	0.030	0.040	0.006	0.008	a	0.005	0.003	0.021	0.002
14-Feb-96	28-Feb-96	14	69	2.2	5.67	-0.0001	-0.0005	0.006	0.009	a	0.003	a	0.002	0.001	0.013	0.001
28-Feb-96	13-Mar-96	14	33	1.0	4.82	b	b	b	b	b	b	b	b	b	b	b
13-Mar-96	27-Mar-96	14	37	1.2	b	b	0.0004	0.014	0.017	0.003	0.007	a	0.004	0.002	0.005	0.001
27-Mar-96	10-Apr-96	14	320	10.0	4.83	0.0015	0.0020	0.097	0.052	0.009	0.010	a	0.007	0.003	0.021	0.003
10-Apr-96	24-Apr-96	14	191	6.0	4.95	0.0019	0.0038	0.116	0.076	0.033	0.009	a	0.006	0.005	0.026	0.003
24-Apr-96	8-May-96	14	218	6.8	5.30	0.0014	0.0021	0.083	0.036	0.022	0.008	a	0.006	0.005	0.021	0.003
8-May-96	22-May-96	14	507	15.8	5.08	0.0070	0.0117	0.331	0.129	0.112	0.010	a	0.007	0.009	0.051	0.008
22-May-96	5-Jun-96	14	753	23.5	4.92	0.0058	0.0102	0.316	0.232	0.088	0.016	a	0.009	0.012	0.070	0.015
5-Jun-96	19-Jun-96	14	805	25.1	5.05	0.0029	0.0043	0.213	0.134	0.034	0.016	a	0.015	0.017	0.055	0.012
19-Jun-96	3-Jul-96	14	333	10.4	4.64	0.0027	0.0037	0.158	0.056	0.015	0.008	a	0.006	0.007	0.018	0.004
3-Jul-96	17-Jul-96	14	650	20.3	5.30	0.0009	0.0006	0.054	0.063	0.009	0.013	a	0.006	0.011	0.026	0.006
17-Jul-96	31-Jul-96	14	1272	39.7	4.71	0.0074	0.0083	0.426	0.210	0.032	0.016	a	0.013	0.015	0.078	0.017
31-Jul-96	14-Aug-96	14	721	22.5	4.81	0.0025	0.0031	0.177	0.137	0.009	0.015	a	0.009	0.011	0.045	0.009
14-Aug-96	28-Aug-96	14	138	4.3	4.83	0.0003	0.0005	0.023	0.035	0.001	0.004	a	0.001	0.001	0.008	0.002
28-Aug-96	11-Sep-96	14	1019	31.8	5.40	0.0004	-0.0013	0.059	0.103	0.005	0.011	a	0.005	0.006	0.065	0.012
28-Aug-96	11-Sep-96	14	682	21.3	5.21	0.0007	0.0011	0.085	0.082	0.005	0.008	a	0.005	0.004	0.033	0.007
11-Sep-96	25-Sep-96	14	455	14.2	4.95	0.0019	0.0046	0.113	0.111	0.025	0.010	a	0.005	a	0.008	0.006
25-Sep-96	9-Oct-96	14	924	28.8	5.99	0.0042	0.0036	0.153	0.054	0.071	0.046	a	0.031	a	0.019	0.042
9-Oct-96	23-Oct-96	14	12	0.4	7.53	b	b	b	b	b	b	b	b	b	b	b
23-Oct-96	6-Nov-96	14	251	7.8	5.26	0.0007	0.0012	0.037	0.022	0.008	0.018	a	0.004	a	0.007	a
6-Nov-96	20-Nov-96	14	156	4.9	5.26	0.0001	0.0001	0.008	0.012	a	0.011	a	0.001	0.002	0.004	a
20-Nov-96	4-Dec-96	14	124	3.9	5.32	0.0000	0.0003	0.018	0.028	0.002	0.010	a	0.003	0.004	0.009	0.001
4-Dec-96	18-Dec-96	14	13	0.4	4.96	b	b	b	b	b	b	b	b	b	b	b
<b>Annual</b>		<b>322</b>	<b>9881</b>	<b>308.3</b>	<b>5.01</b>	<b>0.0423</b>	<b>0.0603</b>	<b>2.529</b>	<b>1.668</b>	<b>0.490</b>	<b>0.260</b>	<b>a</b>	<b>0.151</b>	<b>0.122</b>	<b>0.614</b>	<b>0.154</b>

a insufficient sample for analysis  
d collector not available

b data not available  
\*\* less than 50% of data available

c sample contaminated with dirt, plant or insect material  
\* precipitation depth calculated from catch of collector



## CALGARY

Sample Start Date	Sample End Date	Sample Period (days)	Catch of Collector (ml)	Precip. Depth* (mm)	pH Units	Effective Acidity (H+ kg/ha)	Potential Acid Input (H+ kg/ha)	Sulphate (kg/ha)	Nitrate (kg/ha)	Ammonium (kg/ha)	Chloride (kg/ha)	Phosphate (kg/ha)	Sodium (kg/ha)	Potassium (kg/ha)	Calcium (kg/ha)	Magnesium (kg/ha)
4-Jan-96	24-Jan-96	20	16	0.5	6.07	b	b	b	b	b	b	b	b	b	b	b
24-Jan-96	31-Jan-96	7	85	2.7	5.03	0.0001	0.0005	0.020	0.041	0.004	0.009	a	0.007	0.001	0.013	0.002
31-Jan-96	28-Feb-96	28	90	2.8	6.57	0.0010	0.0014	0.062	0.085	0.030	0.017	a	0.011	0.001	0.044	0.009
28-Feb-96	6-Mar-96	7	238	7.4	5.30	0.0003	0.0014	0.038	0.106	0.018	0.017	a	0.009	0.001	0.033	0.005
6-Mar-96	27-Mar-96	21	197	6.1	b	b	0.0040	0.159	0.170	0.079	0.030	a	0.021	0.005	0.093	0.021
27-Mar-96	3-Apr-96	7	352	11.0	6.10	0.0038	0.0064	0.148	0.169	0.089	0.046	a	0.033	0.002	0.064	0.013
3-Apr-96	17-Apr-96	14	144	4.5	6.91	0.0026	0.0022	0.131	0.082	0.055	0.013	a	0.009	0.001	0.074	0.015
17-Apr-96	24-Apr-96	7	69	2.2	7.07	0.0013	0.0004	0.061	0.041	0.028	0.006	a	0.004	0.002	0.044	0.009
24-Apr-96	8-May-96	14	1067	33.3	6.46	0.0147	0.0157	0.746	0.332	0.287	0.036	a	0.021	0.008	0.320	0.061
8-May-96	22-May-96	14	246	7.7	c	b	b	c	c	c	c	c	c	c	c	c
22-May-96	29-May-96	7	231	7.2	7.15	0.0078	0.0086	0.296	0.237	0.164	0.012	a	0.008	0.007	0.156	0.031
29-May-96	5-Jun-96	7	265	8.3	6.67	0.0035	0.0025	0.202	0.124	0.076	0.006	a	0.003	a	0.121	0.023
5-Jun-96	18-Jun-96	13	1014	31.6	5.61	0.0019	0.0027	0.208	0.092	0.034	0.011	a	0.007	a	0.074	0.015
18-Jun-96	26-Jun-96	8	815	25.4	6.27	0.0058	0.0065	0.215	0.241	0.132	0.010	a	0.014	a	0.143	0.024
26-Jun-96	3-Jul-96	7	113	3.5	5.80	0.0009	0.0017	0.102	0.068	0.025	0.004	a	0.002	0.003	0.043	0.008
3-Jul-96	10-Jul-96	7	141	4.4	4.96	0.0008	0.0014	0.059	0.058	0.016	0.005	a	0.002	0.004	0.023	0.005
10-Jul-96	17-Jul-96	7	597	18.6	5.95	0.0026	0.0008	0.216	0.158	0.065	0.008	a	0.018	0.007	0.149	0.026
17-Jul-96	24-Jul-96	7	75	2.3	6.03	0.0007	0.0011	0.047	0.056	0.020	0.004	a	0.003	0.002	0.028	0.005
24-Jul-96	31-Jul-96	7	576	18.0	5.94	0.0043	0.0044	0.267	0.182	0.096	0.017	a	0.012	0.011	0.143	0.024
31-Jul-96	7-Aug-96	7	1013	31.6	5.12	0.0030	0.0042	0.241	0.174	0.040	0.011	a	0.006	a	0.089	0.017
7-Aug-96	4-Sep-96	28	89	2.8	7.08	0.0030	0.0046	0.238	0.135	0.071	0.005	a	0.003	0.008	0.100	0.016
4-Sep-96	11-Sep-96	7	60	1.9	5.89	0.0008	0.0012	0.034	0.025	0.016	0.003	a	0.001	0.002	0.011	0.002
11-Sep-96	18-Sep-96	7	503	15.7	5.88	0.0002	0.0021	0.092	0.061	0.011	0.007	a	0.003	a	0.019	0.006
18-Sep-96	26-Sep-96	8	335	10.5	4.74	0.0024	0.0053	0.156	0.092	0.025	0.007	a	0.004	a	0.008	0.004
26-Sep-96	2-Oct-96	6	578	18.0	6.39	0.0095	0.0159	0.266	0.160	0.161	0.014	a	0.008	a	0.014	0.005
2-Oct-96	9-Oct-96	7	198	6.2	5.13	0.0005	0.0011	0.042	0.020	0.005	0.003	a	0.001	a	0.004	0.002
9-Oct-96	16-Oct-96	7	57	1.8	7.07	0.0006	0.0015	0.033	0.027	0.015	0.002	a	0.001	a	0.006	0.001
16-Oct-96	30-Oct-96	14	136	4.2	6.15	0.0003	0.0000	0.028	0.021	0.008	0.010	a	0.001	a	0.021	0.003
30-Oct-96	13-Nov-96	14	99	3.1	7.00	0.0029	0.0042	0.111	0.083	0.059	0.022	a	0.018	a	0.043	0.008
13-Nov-96	20-Nov-96	7	408	12.7	5.78	0.0008	0.0015	0.047	0.064	0.019	0.032	a	0.009	a	0.024	0.002
20-Nov-96	27-Nov-96	7	110	3.4	6.57	0.0004	-0.0001	0.023	0.020	0.010	0.013	a	0.007	a	0.023	0.004
27-Nov-96	4-Dec-96	7	158	4.9	5.96	0.0006	0.0009	0.031	0.029	0.014	0.015	a	0.006	a	0.016	0.002
4-Dec-96	24-Dec-96	20	307	9.6	5.87	-0.0005	-0.0001	0.063	0.111	0.010	0.053	a	0.037	0.013	0.054	0.009
24-Dec-96	31-Dec-96	7	97	3.0	5.85	-0.0002	-0.0002	0.015	0.013	0.002	0.011	a	0.005	a	0.013	0.002
31-Dec-96	8-Jan-97	8	215	6.7	5.46	0.0002	0.0008	0.029	0.056	0.009	0.024	a	0.013	a	0.019	0.003
Annual		370	10694	333.7	5.59	0.0757	0.1048	4.426	3.324	1.691	0.483	a	0.309	0.078	2.028	0.382

c sample contaminated with dirt, plant or insect material  
\* precipitation depth calculated from catch of collector

b data not available  
\*\* less than 50% of data available

a insufficient sample for analysis  
d collector not available



## COLD LAKE

Sample Start Date	Sample End Date	Sample Period (days)	Catch of Collector (ml)	Precip. Depth* (mm)	pH Units	Effective Acidity (H+ kg/ha)	Potential Acid Input (H+ kg/ha)	Sulphate (kg/ha)	Nitrate (kg/ha)	Ammonium (kg/ha)	Chloride (kg/ha)	Phosphate (kg/ha)	Sodium (kg/ha)	Potassium (kg/ha)	Calcium (kg/ha)	Magnesium (kg/ha)
6-Feb-96	21-Feb-96	15	444	13.9	4.95	0.0025	0.0060	0.112	0.196	0.049	0.022	0.009	0.006	0.011	0.028	0.007
21-Feb-96	7-Mar-96	15	229	7.1	4.83	0.0010	0.0027	0.060	0.106	0.018	0.009	a	0.006	0.002	0.019	0.003
7-Mar-96	20-Mar-96	13	110	3.4	5.27	0.0005	0.0008	0.022	0.027	0.010	0.004	a	0.001	0.001	0.009	0.002
20-Mar-96	3-Apr-96	14	92	2.9	4.56	0.0003	0.0010	0.023	0.068	0.004	0.007	a	0.004	0.001	0.011	0.002
3-Apr-96	17-Apr-96	14	132	4.1	5.51	0.0063	0.0148	0.290	0.242	0.140	0.010	a	0.006	0.003	0.043	0.008
17-Apr-96	1-May-96	14	293	9.1	5.95	0.0032	0.0050	0.104	0.096	0.066	0.005	a	0.003	0.005	0.034	0.006
1-May-96	15-May-96	14	384	12.0	b	b	0.0076	0.191	0.131	0.099	0.005	a	0.004	0.013	0.060	0.008
16-May-96	29-May-96	13	1387	43.3	5.94	0.0059	0.0076	0.281	0.285	0.135	0.016	a	0.013	a	0.153	0.033
30-May-96	12-Jun-96	13	1208	37.7	5.54	0.0060	0.0083	0.305	0.243	0.120	0.013	a	0.015	0.038	0.107	0.028
12-Jun-96	26-Jun-96	14	2639	82.3	5.62	0.0086	0.0122	0.419	0.637	0.217	0.032	a	0.048	a	0.281	0.058
27-Jun-96	10-Jul-96	13	362	11.3	c	b	b	c	c	c	c	c	c	c	c	c
18-Jul-96	7-Aug-96	20	931	29.1	5.63	0.0001	-0.0024	0.156	0.131	0.013	0.037	a	0.107	0.012	0.115	0.030
8-Aug-96	28-Aug-96	20	903	28.2	5.91	0.0029	0.0005	0.205	0.213	0.078	0.016	a	0.008	0.018	0.160	0.037
29-Aug-96	11-Sep-96	13	906	28.3	6.50	0.0064	0.0030	0.179	0.143	0.125	0.029	0.080	0.082	0.042	0.120	0.035
11-Sep-96	25-Sep-96	14	866	27.0	6.43	0.0068	0.0134	0.192	0.265	0.152	0.015	a	0.008	a	0.037	0.019
25-Sep-96	9-Oct-96	14	154	4.8	5.24	0.0015	0.0034	0.064	0.058	0.029	0.004	a	0.002	a	0.005	0.003
9-Oct-96	23-Oct-96	14	81	2.5	c	b	b	c	c	c	c	c	c	c	c	c
23-Oct-96	21-Nov-96	29	1076	33.6	c	b	b	c	c	c	c	c	c	c	c	c
21-Nov-96	11-Dec-96	20	334	10.4	4.82	0.0009	0.0024	0.040	0.101	0.007	0.025	a	0.003	a	0.008	a
11-Dec-96	8-Jan-97	28	281	8.8	4.76	0.0004	0.0018	0.024	0.113	0.003	0.020	a	0.002	a	0.012	0.001
Annual		324	12812	399.8	5.52	0.0533	0.0883	2.666	3.055	1.266	0.269	0.089	0.317	0.145	1.202	0.280

a insufficient sample for analysis  
d collector not available

b data not available  
\*\* less than 50% of data available

c sample contaminated with dirt, plant or insect material  
\* precipitation depth calculated from catch of collector

## FORT CHIPEWYAN

Sample Start Date	Sample End Date	Sample Period (days)	Catch of Collector (ml)	Precip. Depth* (mm)	pH Units	Effective Acidity (H+ kg/ha)	Potential Acid Input (H+ kg/ha)	Sulphate (kg/ha)	Nitrate (kg/ha)	Ammonium (kg/ha)	Chloride (kg/ha)	Phosphate (kg/ha)	Sodium (kg/ha)	Potassium (kg/ha)	Calcium (kg/ha)	Magnesium (kg/ha)
5-Jun-96	12-Jun-96	7	319	10.0	6.96	0.0014	-0.0007	0.223	0.059	0.033	0.052	a	0.179	0.032	0.077	0.042
12-Jun-96	19-Jun-96	7	1060	33.1	4.80	0.0076	0.0115	0.427	0.273	0.085	0.072	a	0.047	0.035	0.081	0.020
4-Jul-96	16-Jul-96	12	1992	62.2	4.92	0.0050	0.0035	0.262	0.262	0.008	0.067	a	0.045	0.040	0.081	0.019
16-Jul-96	1-Aug-96	16	4100	127.9	5.20	0.0074	-0.0053	0.270	0.061	a	0.123	a	0.096	0.060	0.152	0.033
1-Aug-96	27-Aug-96	26	1760	54.9	c	b	b	c	c	c	c	c	c	c	c	c
27-Aug-96	19-Sep-96	23	2028	63.3	5.64	0.0146	0.0339	0.738	0.420	0.281	0.026	a	0.019	a	0.047	0.018
19-Sep-96	30-Sep-96	11	2053	64.1	6.12	0.0040	-0.0030	0.093	a	0.055	0.112	a	0.091	a	0.041	0.072
30-Sep-96	23-Oct-96	23	924	28.8	c	b	b	c	c	c	c	c	c	c	c	c
4-Dec-96	11-Dec-96	7	502	15.7	c	b	b	c	c	c	c	c	c	c	c	c
Annual		**	**	**	**	**	**	**	**	**	**	**	**	**	**	**

c sample contaminated with dirt, plant or insect material  
\* precipitation depth calculated from catch of collector

b data not available  
\*\* less than 50% of data available

a insufficient sample for analysis  
d collector not available

# FORT MCMURRAY

## Precipitation Quality Monitoring

Sample Start Date	Sample End Date	Sample Period (days)	Catch of Collector (ml)	Precip. Depth* (mm)	pH	Effective Acidity (H+ kg/ha)	Potential Acid Input (H+ kg/ha)	Sulphate (kg/ha)	Nitrate (kg/ha)	Ammonium (kg/ha)	Chloride (kg/ha)	Phosphate (kg/ha)	Sodium (kg/ha)	Potassium (kg/ha)	Calcium (kg/ha)	Magnesium (kg/ha)
2-Jan-96	9-Jan-96	7	64	2.0	4.80	-0.0000	0.0004	0.009	0.031	a	0.007	a	0.005	0.001	0.004	0.001
9-Jan-96	16-Jan-96	7	162	5.1	4.82	0.0005	0.0007	0.031	0.025	a	0.010	a	0.005	0.001	0.005	0.001
16-Jan-96	23-Jan-96	7	3	0.1	b	b	b	b	b	b	b	b	b	b	b	b
6-Feb-96	12-Feb-96	6	110	3.4	5.16	0.0002	0.0001	0.014	0.014	0.002	0.010	a	0.003	0.001	0.006	0.001
12-Feb-96	22-Feb-96	10	188	5.9	5.39	0.0002	0.0002	0.016	0.020	0.004	0.007	a	0.004	0.001	0.009	0.002
22-Feb-96	29-Feb-96	7	17	0.5	5.14	b	b	b	b	b	b	b	b	b	b	b
29-Feb-96	12-Mar-96	12	49	1.5	4.91	0.0002	0.0004	0.015	0.008	0.002	0.004	a	0.002	0.000	0.003	0.001
12-Mar-96	19-Mar-96	7	230	7.2	4.59	0.0020	0.0032	0.121	0.060	0.014	0.013	a	0.006	0.003	0.015	0.002
19-Mar-96	26-Mar-96	7	13	0.4	b	b	b	b	b	b	b	b	b	b	b	b
26-Mar-96	18-Apr-96	23	115	3.6	5.82	0.0007	0.0009	0.080	0.042	0.018	0.008	a	0.005	0.002	0.032	0.010
18-Apr-96	23-Apr-96	5	184	5.7	5.68	0.0006	0.0002	0.030	0.014	0.010	0.003	a	0.003	a	0.016	0.004
23-Apr-96	16-May-96	23	687	21.4	5.49	0.0052	0.0077	0.251	0.165	0.098	0.011	a	0.008	0.005	0.080	0.017
16-May-96	28-May-96	12	339	10.6	4.89	0.0021	0.0035	0.122	0.076	0.025	0.006	a	0.004	a	0.025	0.006
28-May-96	4-Jun-96	7	360	11.2	4.78	0.0034	0.0056	0.246	0.101	0.042	0.007	a	0.004	0.007	0.046	0.013
4-Jun-96	17-Jun-96	13	681	21.2	5.05	0.0060	0.0125	0.428	0.275	0.113	0.020	a	0.015	0.028	0.093	0.022
17-Jun-96	25-Jun-96	8	1020	31.8	5.01	0.0034	0.0044	0.198	0.132	0.027	0.012	a	0.009	a	0.048	0.011
25-Jun-96	8-Jul-96	13	1040	32.5	4.67	0.0056	0.0070	0.321	0.177	0.010	0.015	a	0.006	0.008	0.040	0.011
8-Jul-96	18-Jul-96	10	578	18.0	4.34	0.0087	-0.0010	0.038	0.029	0.012	a	a	0.007	0.006	0.037	0.011
18-Jul-96	26-Jul-96	8	1017	31.7	4.57	0.0061	0.0079	0.385	0.214	a	0.010	0.049	0.009	0.008	0.048	0.012
26-Jul-96	31-Jul-96	5	156	4.9	4.33	0.0023	0.0029	0.139	0.025	0.006	0.002	a	0.002	0.002	0.008	0.003
31-Jul-96	7-Aug-96	7	1056	33.0	4.64	0.0065	0.0078	0.380	0.123	0.005	0.007	a	0.007	0.007	0.030	0.009
7-Aug-96	16-Aug-96	9	1042	32.5	5.14	0.0018	0.0009	0.107	0.083	0.005	0.007	a	0.010	0.007	0.040	0.010
16-Aug-96	21-Aug-96	5	267	8.3	5.17	0.0014	0.0025	0.093	0.060	0.024	0.005	a	0.003	0.006	0.021	0.006
21-Aug-96	3-Sep-96	13	287	9.0	5.59	0.0005	0.0001	0.061	0.035	0.010	0.005	a	0.003	a	0.032	0.009
3-Sep-96	17-Sep-96	14	1054	32.9	5.26	0.0028	0.0068	0.179	0.159	0.044	0.017	a	0.012	a	0.021	0.010
17-Sep-96	8-Oct-96	21	1054	32.9	5.00	0.0049	0.0094	0.338	0.127	0.048	0.020	a	0.013	a	0.024	0.013
8-Oct-96	21-Oct-96	13	470	14.7	5.17	0.0010	0.0022	0.092	0.075	0.013	0.033	a	0.005	a	0.028	0.003
21-Oct-96	29-Oct-96	8	311	9.7	6.56	0.0031	0.0029	0.084	0.051	0.058	0.030	a	0.018	0.021	0.036	0.006
29-Oct-96	13-Nov-96	15	18	0.6	6.50	b	b	b	b	b	b	b	b	b	b	b
13-Nov-96	20-Nov-96	7	64	2.0	5.37	0.0000	0.0001	0.010	0.012	0.001	0.007	a	0.003	0.001	0.006	0.001
20-Nov-96	28-Nov-96	8	135	4.2	5.53	-0.0000	0.0003	0.017	0.041	0.005	0.018	a	0.012	0.007	0.013	0.002
28-Nov-96	9-Dec-96	11	131	4.1	5.09	0.0001	0.0005	0.020	0.035	0.002	0.018	a	0.011	a	0.010	0.001
9-Dec-96	5-Feb-97	58	461	14.4	5.05	0.0007	0.0021	0.067	0.111	0.011	0.044	a	0.022	0.010	0.024	0.003
Annual		386	13363	417.0	4.86	0.0700	0.0921	3.889	2.311	0.608	0.354	0.049	0.214	0.132	0.799	0.202

c sample contaminated with dirt, plant or insect material  
\* precipitation depth calculated from catch of collector

b data not available  
\*\* less than 50% of data available

a insufficient sample for analysis  
d collector not available

## HIGH PRAIRIE

Sample Start Date	Sample End Date	Sample Period (days)	Catch of Collector (ml)	Precip. Depth* (mm)	pH pH Units	Effective Acidity (H+ kg/ha)	Potential Acid Input (H+ kg/ha)	Sulphate (kg/ha)	Nitrate (kg/ha)	Ammonium (kg/ha)	Chloride (kg/ha)	Phosphate (kg/ha)	Sodium (kg/ha)	Potassium (kg/ha)	Calcium (kg/ha)	Magnesium (kg/ha)
1-Jul-96	7-Jul-96	6	664	20.7	5.40	0.0008	-0.0016	0.073	a	a	0.022	a	0.014	0.006	0.047	0.008
9-Jul-96	28-Aug-96	50	939	29.3	5.44	0.0011	-0.0027	0.096	a	a	0.022	a	0.019	0.008	0.071	0.012
28-Jul-96	8-Aug-96	11	1017	31.7	4.96	0.0010	0.0025	0.094	0.222	a	0.012	a	0.014	0.006	0.043	0.009
1-Dec-96	31-Dec-96	30	817	25.5	c	b	b	c	c	c	c	c	c	c	c	c
<b>Annual</b>		**	**	**	**	**	**	**	**	**	**	**	**	**	**	**

a insufficient sample for analysis  
 b data not available  
 c sample contaminated with dirt, plant or insect material  
 d collector not available  
 \*\* less than 50% of data available  
 \* precipitation depth calculated from catch of collector

## KANANASKIS

Sample Start Date	Sample End Date	Sample Period (days)	Catch of Collector (ml)	Precip. Depth* (mm)	pH	Effective Acidity (H <sup>+</sup> kg/ha)	Potential Acid Input (H <sup>+</sup> kg/ha)	Sulphate (kg/ha)	Nitrate (kg/ha)	Ammonium (kg/ha)	Chloride (kg/ha)	Phosphate (kg/ha)	Sodium (kg/ha)	Potassium (kg/ha)	Calcium (kg/ha)	Magnesium (kg/ha)
10-Jan-96	17-Jan-96	7	90	2.8	5.84	0.0002	-0.0001	0.013	0.018	0.006	0.003	a	0.001	0.001	0.016	0.002
17-Jan-96	7-Feb-96	21	53	1.7	5.28	0.0001	0.0001	0.004	0.012	0.002	0.001	0.000	0.000	0.000	0.005	0.001
7-Feb-96	14-Feb-96	7	110	3.4	5.71	0.0004	0.0002	0.014	0.014	0.008	0.003	a	0.002	0.001	0.012	0.001
21-Feb-96	28-Feb-96	7	325	10.1	4.74	0.0002	0.0023	0.015	0.187	0.007	0.007	a	0.002	a	0.024	0.003
28-Feb-96	6-Mar-96	7	339	10.6	5.03	0.0006	0.0016	0.026	0.101	0.012	0.016	a	0.003	0.001	0.021	0.002
7-Mar-96	13-Mar-96	6	187	5.8	b	b	0.0016	0.053	0.029	0.013	0.004	a	0.003	0.001	0.011	0.002
13-Mar-96	20-Mar-96	7	77	2.4	b	b	0.0010	0.008	0.004	0.020	0.001	0.001	0.001	0.004	0.004	0.001
20-Mar-96	27-Mar-96	7	167	5.2	4.97	0.0020	0.0033	0.060	0.057	0.033	0.003	a	0.002	0.001	0.010	0.002
27-Mar-96	3-Apr-96	7	176	5.5	4.54	0.0012	0.0028	0.042	0.127	0.016	0.007	a	0.006	0.001	0.014	0.003
3-Apr-96	17-Apr-96	14	351	11.0	4.89	0.0023	0.0037	0.107	0.071	0.026	0.004	a	0.002	0.002	0.017	0.003
17-Apr-96	1-May-96	14	182	5.7	5.48	0.0008	0.0008	0.031	0.031	0.016	0.004	a	0.002	0.001	0.019	0.004
17-Apr-96	1-May-96	14	14	0.4	4.93	b	b	b	b	b	b	b	b	b	b	b
1-May-96	15-May-96	14	2377	74.2	5.00	0.0199	0.0357	0.932	0.805	0.303	0.021	a	0.019	0.013	0.157	0.025
1-May-96	15-May-96	14	105	3.3	4.91	0.0019	0.0033	0.079	0.040	0.030	0.003	a	0.004	0.001	0.010	0.002
15-May-96	29-May-96	14	837	26.1	5.18	0.0048	0.0082	0.194	0.183	0.080	0.008	a	0.004	a	0.048	0.010
29-May-96	12-Jun-96	14	156	4.9	6.02	0.0014	0.0010	0.061	0.030	0.026	0.002	a	0.002	a	0.031	0.007
12-Jun-96	19-Jun-96	7	325	10.1	6.23	0.0030	0.0043	0.115	0.103	0.064	0.005	a	0.005	a	0.050	0.009
19-Jun-96	26-Jun-96	7	1117	34.9	4.67	0.0116	0.0191	0.692	0.291	0.116	0.009	a	0.010	a	0.097	0.020
26-Jun-96	10-Jul-96	14	254	7.9	5.78	0.0003	-0.0011	0.035	0.052	0.011	0.003	a	0.001	0.005	0.046	0.010
26-Jun-96	10-Jul-96	14	56	1.7	6.26	0.0002	-0.0008	0.001	0.003	0.003	0.000	a	0.000	0.001	0.016	0.003
10-Jul-96	24-Jul-96	14	117	3.7	5.42	0.0005	0.0005	0.022	0.019	0.009	0.001	a	0.002	a	0.011	0.003
10-Jul-96	24-Jul-96	14	227	7.1	5.32	0.0005	-0.0001	0.100	0.049	0.011	0.003	a	0.005	a	0.055	0.010
24-Jul-96	7-Aug-96	14	308	9.6	5.80	0.0001	-0.0010	0.011	0.014	0.002	0.002	a	0.005	0.002	0.023	0.005
24-Jul-96	7-Aug-96	14	33	1.0	6.19	0.0003	0.0004	0.023	0.030	0.011	0.004	0.001	0.001	0.003	0.016	0.003
14-Aug-96	21-Aug-96	7	109	3.4	5.82	0.0004	0.0006	0.044	0.075	0.019	0.007	a	0.003	0.006	0.036	0.008
28-Aug-96	4-Sep-96	7	101	3.2	5.81	0.0001	-0.0003	0.041	0.019	0.005	0.002	a	0.002	0.002	0.024	0.006
4-Sep-96	11-Sep-96	7	231	7.2	5.72	0.0001	-0.0004	0.023	0.031	0.005	0.004	a	0.001	a	0.025	0.005
11-Sep-96	25-Sep-96	14	1482	46.2	4.88	0.0043	0.0074	0.269	0.211	0.010	0.019	a	0.010	a	0.025	0.011
25-Sep-96	2-Oct-96	7	582	18.2	5.22	0.0011	0.0017	0.088	0.074	0.013	0.009	a	0.004	a	0.009	0.019
2-Oct-96	9-Oct-96	7	206	6.4	4.89	0.0008	0.0012	0.051	0.021	0.003	0.003	a	0.001	a	0.004	0.002
9-Oct-96	16-Oct-96	7	379	11.8	6.08	-0.0001	0.0027	0.097	0.079	0.011	0.005	a	0.003	a	0.017	0.004
23-Oct-96	30-Oct-96	7	392	12.2	5.31	0.0003	0.0002	0.032	0.028	a	0.026	a	0.003	0.003	0.016	a
6-Nov-96	13-Nov-96	7	50	1.6	5.75	0.0001	0.0002	0.012	0.014	0.003	0.004	a	0.001	a	0.008	0.001
13-Nov-96	27-Nov-96	14	1249	39.0	5.98	0.0003	-0.0025	0.075	0.077	0.012	0.113	0.015	0.042	0.025	0.098	0.005
27-Nov-96	4-Dec-96	7	140	4.4	5.60	0.0007	0.0015	0.035	0.030	0.014	0.010	a	0.001	a	0.010	a
4-Dec-96	8-Jan-97	35	590	18.4	b	b	-0.0008	0.028	0.082	0.003	0.044	a	0.007	a	0.051	0.005
<b>Annual</b>		<b>328</b>	<b>13494</b>	<b>421.1</b>	<b>5.09</b>	<b>0.0604</b>	<b>0.0982</b>	<b>3.431</b>	<b>2.809</b>	<b>0.925</b>	<b>0.360</b>	<b>0.017</b>	<b>0.161</b>	<b>0.074</b>	<b>1.036</b>	<b>0.198</b>

c sample contaminated with dirt, plant or insect material  
\* precipitation depth calculated from catch of collector

b data not available  
\*\* less than 50% of data available

a insufficient sample for analysis  
d collector not available



# RED DEER

## Precipitation Quality Monitoring

Sample Start Date	Sample End Date	Sample Period (days)	Catch of Collector (ml)	Precip. Depth* (mm)	pH	Effective Acidity (H <sup>+</sup> kg/ha)	Potential Acid Input (H <sup>+</sup> kg/ha)	Sulphate (kg/ha)	Nitrate (kg/ha)	Ammonium (kg/ha)	Chloride (kg/ha)	Phosphate (kg/ha)	Sodium (kg/ha)	Potassium (kg/ha)	Calcium (kg/ha)	Magnesium (kg/ha)
3-Jan-96	10-Jan-96	7	61	1.9	5.69	0.0003	0.0008	0.012	0.024	0.009	0.001	0.001	0.001	0.001	0.005	0.001
10-Jan-96	17-Jan-96	7	190	5.9	4.93	0.0007	0.0012	0.029	0.060	0.011	0.039	a	0.003	0.002	0.015	0.002
28-Feb-96	6-Mar-96	7	148	4.6	4.93	0.0018	0.0044	0.081	0.114	0.040	0.013	0.002	0.006	0.002	0.021	0.003
20-Mar-96	27-Mar-96	7	73	2.3	b	b	0.0017	0.030	0.036	0.021	0.003	a	0.002	0.000	0.009	0.002
27-Mar-96	3-Apr-96	7	317	9.9	4.83	0.0013	0.0041	0.088	0.176	0.028	0.011	a	0.007	0.002	0.032	0.006
10-Apr-96	25-Apr-96	15	84	2.6	6.82	0.0070	0.0128	0.262	0.132	0.134	0.009	a	0.006	0.001	0.033	0.007
1-May-96	8-May-96	7	442	13.8	c	b	b	c	c	c	c	c	c	c	c	c
8-May-96	15-May-96	7	57	1.8	6.51	0.0011	0.0016	0.036	0.021	0.021	0.001	a	0.000	0.001	0.011	0.002
15-May-96	22-May-96	7	159	5.0	6.97	0.0046	0.0057	0.153	0.115	0.092	0.003	a	0.002	0.002	0.070	0.011
22-May-96	29-May-96	7	57	1.8	6.81	0.0013	0.0019	0.071	0.057	0.030	0.002	a	0.001	0.001	0.033	0.006
29-May-96	6-Jun-96	8	320	10.0	6.53	0.0049	0.0060	0.128	0.131	0.099	0.004	a	0.002	a	0.068	0.011
6-Jun-96	12-Jun-96	6	267	8.3	6.60	0.0026	0.0018	0.142	0.105	0.059	0.005	a	0.003	a	0.095	0.016
12-Jun-96	26-Jun-96	14	1747	54.5	5.36	0.0043	0.0047	0.335	0.231	0.070	0.015	a	0.019	a	0.155	0.026
26-Jun-96	5-Jul-96	9	724	22.6	5.17	0.0037	0.0060	0.357	0.245	0.077	0.007	a	0.003	0.012	0.141	0.028
5-Jul-96	11-Jul-96	6	292	9.1	6.05	0.0019	0.0023	0.109	0.112	0.049	0.006	a	0.002	0.005	0.068	0.012
18-Jul-96	31-Jul-96	13	946	29.5	5.46	0.0060	0.0083	0.358	0.206	0.115	0.010	a	0.006	0.008	0.133	0.024
31-Jul-96	14-Aug-96	14	805	25.1	5.40	0.0021	0.0038	0.164	0.156	0.045	0.011	a	0.009	0.014	0.067	0.012
14-Aug-96	21-Aug-96	7	144	4.5	5.19	0.0005	0.0012	0.085	0.060	0.014	0.002	a	0.004	0.002	0.033	0.007
21-Aug-96	4-Sep-96	14	190	5.9	5.60	0.0001	-0.0005	0.026	a	a	0.010	a	0.008	a	0.005	0.010
4-Sep-96	20-Sep-96	16	1008	31.5	5.31	0.0097	0.0256	0.601	0.402	0.199	0.019	a	0.008	a	0.044	0.027
20-Sep-96	2-Oct-96	12	900	28.1	4.84	0.0055	0.0146	0.293	0.333	0.081	0.015	a	0.008	a	0.016	0.008
2-Oct-96	10-Oct-96	8	84	2.6	5.34	0.0009	0.0015	0.029	0.015	0.015	0.001	a	0.001	a	0.001	0.001
10-Oct-96	18-Oct-96	8	98	3.1	5.85	0.0010	0.0019	0.034	0.025	0.020	0.007	a	0.001	a	0.006	a
18-Oct-96	30-Oct-96	12	227	7.1	5.70	0.0024	0.0042	0.121	0.047	0.044	0.016	a	0.001	a	0.025	0.003
6-Nov-96	13-Nov-96	7	575	17.9	5.61	0.0035	0.0093	0.154	0.205	0.085	0.041	a	0.005	a	0.036	0.002
13-Nov-96	5-Dec-96	22	61	1.9	c	c	c	c	c	c	c	c	c	c	c	c
5-Dec-96	9-Jan-97	35	299	9.3	6.49	0.0002	-0.0009	0.081	0.050	0.012	0.022	a	0.030	a	0.075	0.003
<b>Annual</b>		<b>267</b>	<b>10214</b>	<b>318.7</b>	<b>5.31</b>	<b>0.0676</b>	<b>0.1242</b>	<b>3.781</b>	<b>3.056</b>	<b>1.371</b>	<b>0.271</b>	<b>0.003</b>	<b>0.139</b>	<b>0.054</b>	<b>1.197</b>	<b>0.227</b>

c sample contaminated with dirt, plant or insect material  
 \* precipitation depth calculated from catch of collector  
 b data not available  
 \*\* less than 50% of data available

a insufficient sample for analysis  
 d collector not available



# ROYAL PARK

## Precipitation Quality Monitoring

Sample Start Date	Sample End Date	Sample Period (days)	Catch of Collector (ml)	Precip. Depth* (mm)	pH	Effective Acidity (H+ kg/ha)	Potential Acid Input (H+ kg/ha)	Sulphate (kg/ha)	Nitrate (kg/ha)	Ammonium (kg/ha)	Chloride (kg/ha)	Phosphate (kg/ha)	Sodium (kg/ha)	Potassium (kg/ha)	Calcium (kg/ha)	Magnesium (kg/ha)
9-Jan-96	26-Jan-96	17	2	0.1	b	b	b	b	b	b	b	b	b	b	b	b
8-Feb-96	14-Feb-96	6	35	1.1	5.66	0.0007	0.0030	0.058	0.064	0.022	0.006	0.001	0.003	0.003	0.007	0.001
14-Feb-96	23-Feb-96	9	59	1.8	6.00	0.0003	0.0007	0.019	0.023	0.008	0.002	0.001	0.001	0.001	0.008	0.001
1-Mar-96	8-Mar-96	7	15	0.5	5.29	b	b	b	b	b	b	b	b	b	b	b
8-Mar-96	15-Mar-96	7	6	0.2	b	b	b	b	b	b	b	b	b	b	b	b
15-Mar-96	21-Mar-96	6	89	2.8	6.36	0.0007	0.0007	0.021	0.022	0.015	0.003	a	0.001	0.001	0.013	0.002
4-Apr-96	12-Apr-96	8	32	1.0	6.05	0.0003	0.0005	0.013	0.014	0.007	0.002	a	0.001	0.000	0.005	0.001
12-Apr-96	19-Apr-96	7	14	0.4	7.00	b	b	b	b	b	b	b	b	b	b	b
19-Apr-96	26-Apr-96	7	315	9.8	c	b	b	c	c	c	c	c	c	c	c	c
26-Apr-96	2-May-96	6	315	9.8	6.61	0.0027	0.0033	0.076	0.056	0.051	0.005	a	0.001	0.003	0.030	0.005
2-May-96	8-May-96	6	150	4.7	6.93	0.0038	0.0036	0.085	0.044	0.068	0.004	0.002	0.002	0.005	0.035	0.010
8-May-96	17-May-96	9	149	4.6	6.13	0.0025	0.0065	0.154	0.132	0.062	0.003	0.002	0.001	0.003	0.033	0.006
17-May-96	24-May-96	7	116	3.6	6.73	0.0017	0.0017	0.042	0.050	0.035	0.003	0.002	0.001	0.002	0.027	0.006
24-May-96	31-May-96	7	93	2.9	6.08	0.0015	0.0043	0.093	0.125	0.045	0.004	a	0.003	0.002	0.031	0.006
31-May-96	6-Jun-96	6	502	15.7	6.00	0.0054	0.0088	0.194	0.180	0.114	0.007	a	0.007	a	0.068	0.013
6-Jun-96	13-Jun-96	7	78	2.4	6.91	0.0020	0.0024	0.050	0.067	0.043	0.004	a	0.003	0.003	0.031	0.006
13-Jun-96	19-Jun-96	6	561	17.5	6.29	0.0036	0.0045	0.218	0.232	0.097	0.011	a	0.007	a	0.139	0.027
19-Jun-96	28-Jun-96	9	346	10.8	6.37	0.0024	0.0023	0.084	0.106	0.055	0.006	a	0.003	a	0.066	0.011
28-Jun-96	5-Jul-96	7	337	10.5	5.51	0.0022	0.0050	0.139	0.170	0.060	0.006	a	0.003	a	0.058	0.011
5-Jul-96	12-Jul-96	7	801	25.0	5.46	0.0021	0.0029	0.129	0.137	0.044	0.008	a	0.005	a	0.068	0.012
12-Jul-96	19-Jul-96	7	496	15.5	5.24	0.0034	0.0060	0.178	0.145	0.065	0.008	a	0.005	a	0.054	0.005
19-Jul-96	25-Jul-96	6	797	24.9	5.82	0.0053	0.0057	0.132	0.088	0.093	0.005	a	0.008	0.006	0.053	0.010
25-Jul-96	31-Jul-96	6	536	16.7	4.93	0.0049	0.0085	0.224	0.142	0.071	0.006	a	0.003	0.004	0.033	0.007
31-Jul-96	9-Aug-96	9	2236	69.8	5.91	0.0092	0.0075	0.352	0.329	0.190	0.038	0.029	0.027	0.062	0.214	0.041
9-Aug-96	16-Aug-96	7	94	2.9	5.32	0.0004	0.0007	0.049	0.040	0.012	0.002	a	0.001	0.002	0.024	0.005
16-Aug-96	23-Aug-96	7	205	6.4	6.04	0.0013	0.0014	0.094	0.053	0.028	0.003	a	0.006	a	0.043	0.010
30-Aug-96	5-Sep-96	6	434	13.5	5.90	0.0015	0.0015	0.087	0.100	0.038	0.005	a	0.003	a	0.063	0.011
5-Sep-96	11-Sep-96	6	114	3.6	5.91	0.0010	0.0017	0.040	0.034	0.020	0.002	a	0.002	a	0.012	0.003
11-Sep-96	20-Sep-96	9	1555	48.5	5.54	0.0058	0.0126	0.209	0.260	0.115	0.020	a	0.009	a	0.026	0.013
20-Sep-96	26-Sep-96	6	59	1.8	5.38	0.0007	0.0016	0.031	0.021	0.013	0.001	a	0.001	a	0.002	0.001
26-Sep-96	4-Oct-96	8	290	9.0	4.74	0.0015	0.0036	0.081	0.094	0.015	0.010	a	0.002	a	0.005	0.002
4-Oct-96	11-Oct-96	7	20	0.6	5.44	0.0006	0.0014	0.028	0.019	0.013	0.006	0.001	0.002	a	0.001	0.002
25-Oct-96	8-Nov-96	14	172	5.4	5.19	0.0006	0.0022	0.047	0.066	0.016	0.015	a	0.004	a	0.013	0.002
8-Nov-96	15-Nov-96	7	5	0.2	4.04	b	b	b	b	b	b	b	b	b	b	b
15-Nov-96	28-Nov-96	13	20	0.6	5.98	b	b	b	b	b	b	b	b	b	b	b
28-Nov-96	4-Dec-96	6	25	0.8	4.84	b	b	b	b	b	b	b	b	b	b	b
4-Dec-96	13-Dec-96	9	30	0.9	5.03	b	b	b	b	0.002	b	b	0.003	0.002	0.002	0.000
13-Dec-96	19-Dec-96	6	13	0.4	6.22	b	b	b	b	b	b	b	b	b	b	b
19-Dec-96	3-Jan-97	15	139	4.3	5.75	-0.0000	0.0003	0.013	0.018	0.001	0.012	a	0.004	0.003	0.006	a
Annual		305	11255	351.2	5.54	0.0679	0.1049	2.940	2.829	1.415	0.207	0.038	0.124	0.108	1.169	0.236

c sample contaminated with dirt, plant or insect material  
\* precipitation depth calculated from catch of collector

b data not available  
\*\* less than 50% of data available

a insufficient sample for analysis  
d collector not available

## SUFFIELD

Sample Start Date	Sample End Date	Sample Period (days)	Catch of Collector (ml)	Precip. Depth* (mm)	pH pH Units	Effective Acidity (H+ kg/ha)	Potential Acid Input (H+ kg/ha)	Sulphate (kg/ha)	Nitrate (kg/ha)	Ammonium (kg/ha)	Chloride (kg/ha)	Phosphate (kg/ha)	Sodium (kg/ha)	Potassium (kg/ha)	Calcium (kg/ha)	Magnesium (kg/ha)
1-Apr-96	10-Apr-96	9	73	2.3	6.82	0.0029	0.0068	0.133	0.196	0.080	0.008	a	0.014	0.007	0.049	0.010
10-Apr-96	17-Apr-96	7	299	9.3	5.84	0.0008	0.0003	0.041	0.050	0.019	0.015	a	0.009	0.004	0.033	0.007
17-Apr-96	24-Apr-96	7	144	4.5	b	b	0.0040	0.104	0.084	0.040	0.004	a	0.003	0.002	0.026	0.005
24-Apr-96	8-May-96	14	168	5.2	6.90	0.0025	0.0028	0.197	0.171	0.069	0.005	a	0.007	0.004	0.107	0.030
8-May-96	22-May-96	14	121	3.8	6.97	0.0021	0.0023	0.099	0.118	0.053	0.003	a	0.002	0.003	0.059	0.019
22-May-96	5-Jun-96	14	643	20.1	6.57	0.0051	0.0034	0.162	0.227	0.120	0.012	a	0.010	a	0.147	0.036
5-Jun-96	3-Jul-96	28	716	22.3	6.02	0.0014	0.0002	0.134	0.242	0.062	0.031	a	0.021	0.011	0.143	0.030
3-Jul-96	17-Jul-96	14	289	9.0	5.96	0.0014	0.0009	0.108	0.120	0.041	0.009	a	0.008	0.007	0.082	0.016
17-Jul-96	14-Aug-96	28	185	5.8	c	b	b	c	c	c	c	c	c	c	c	c
14-Aug-96	4-Sep-96	21	626	19.5	5.93	0.0030	0.0058	0.211	0.285	0.095	0.013	a	0.010	0.016	0.117	0.026
4-Sep-96	18-Sep-96	14	470	14.7	5.08	0.0014	0.0048	0.086	0.145	0.029	0.008	a	0.004	a	0.011	0.005
18-Sep-96	2-Oct-96	14	593	18.5	4.60	0.0057	0.0134	0.272	0.301	0.070	0.011	a	0.006	a	0.011	0.006
2-Oct-96	16-Oct-96	14	232	7.2	4.85	0.0007	0.0010	0.039	0.032	a	0.015	a	0.002	0.002	0.006	a
16-Oct-96	6-Nov-96	21	22	0.7	4.63	b	b	b	b	b	b	b	b	b	b	b
6-Nov-96	18-Dec-96	42	164	5.1	6.23	0.0011	0.0049	0.138	0.167	0.046	0.021	a	0.036	0.010	0.045	0.009
18-Dec-96	8-Jan-97	21	234	7.3	5.44	-0.0002	0.0004	0.034	0.072	0.006	0.019	a	0.005	0.006	0.027	0.004
<b>Annual</b>		<b>283</b>	<b>4979</b>	<b>155.4</b>	<b>5.28</b>	<b>0.0278</b>	<b>0.0510</b>	<b>1.758</b>	<b>2.211</b>	<b>0.729</b>	<b>0.175</b>	<b>a</b>	<b>0.138</b>	<b>0.071</b>	<b>0.864</b>	<b>0.203</b>

c sample contaminated with dirt, plant or insect material  
 \* precipitation depth calculated from catch of collector

b data not available  
 \*\* less than 50% of data available

a insufficient sample for analysis  
 d collector not available



## REFERENCES

- Bull, K.R. 1992. An introduction to critical loads. *Environmental Pollution* 77: 173-176.
- Coote, D.R., D. Siminovitch, S.S. Sing and C. Wang. 1981. The significance of acid rain to agriculture in Eastern Canada. Agriculture Canada, Ottawa, LRRI Contribution 119, CBRI Contribution 1236. pp 26.
- Gilbert, R.O. 1987. Statistical methods for environmental pollution monitoring. Van Nostrand Reinhold Company Inc. New York, New York. ISBN 0-442-23050-8.
- Gilliom, R.J. and D.R. Helsel. 1986. Estimation of distributional parameters for censored trace level water quality data: 1. Estimation techniques. *Water Resources Research*, Vol. 22 No. 2, pp 135-146.
- Lovblad, M. Amann, B. Anderson, M. Hovmand, S. Joffre, and U. Pedersen. 1992. Deposition of sulfur and nitrogen in the Nordic Countries: Present and future. *Ambio* 21: 339-347.
- Peake, E. 1993. Acid deposition program progress report: Technology evaluation and deposition velocity projects. Environmental Research and Engineering Department, Alberta Research Council. Prepared for the Alberta Environment Acid Deposition Program.
- Trenberth, K.E. 1983. What are the seasons? *B. of the Am. Met. Soc.* 64(11):1276-1282.
- Zar, J.H. 1974. Biostatistical analysis. Prentice-Hall Inc. Englewood Cliffs, New Jersey. ISBN 0-13-076984- 3.6.







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